

HA2533

TC-755



USA Model  
E Model  
AEP Model  
UK Model

= Wega B 4610

## STEREO TAPECORDER

## SPECIFICATIONS

<b>Power Requirements:</b>	AC 120 V, 60 Hz, 100 W (USA) AC 100, 110, 120, 127, 220 or 240 V, 50/60 Hz, 55 W (E) AC 110, 127, 220, or 240 V, 50/60 Hz, 110 W (AEP, UK)	<b>Inputs:</b>	MIC (2) Impedance: low Maximum sensitivity: -72dB (0.19 mV)
<b>Track System:</b>	Four-track two-channel stereo and monaural	<b>Outputs:</b>	LINE IN (2) Impedance: 100 kΩ Maximum sensitivity: -22dB (60 mV)
<b>Reels:</b>	270 mm (10½ inches) or smaller		LINE OUT (2) Impedance: 100 kΩ Level: -5 dB (0.44 V) with 100 kΩ load
<b>Tape Speed:</b>	19 cm/s (7½ ips), 9.5 cm/s (3¾ ips)		HEADPHONE Impedance: 8 Ω
<b>Recording Time:</b>	6 hours total at 9.5 cm/s (3¾ ips), stereo recording, with 1,100 m (3360 ft.) tape of 270 mm (10½ inch) reel	<b>REC/PB (DIN) Connector (E, AEP):</b>	Input impedance: 3.9 kΩ Output impedance: 8.2 kΩ
<b>Frequency Response:</b>	According to NAB standards 20~30,000 Hz at 19 cm/s (7½ ips) 30~25,000 Hz ± 3 dB at 19 cm/s (7½ ips) 20~20,000 Hz at 9.5 cm/s (3¾ ips) According to DIN standards 30~24,000 Hz at 19 cm/s (7½ ips) 40~16,000 Hz at 9.5 cm/s (3¾ ips)	<b>AC Outlet (USA):</b>	Unswitched, 300 W maximum
<b>Signal-to-Noise Ratio:</b>	56 dB (with SONY SLH tape) 53 dB (with standard tape)	<b>Heads:</b>	Record : RF140-2902 Playback: PF140-4202 Erase : EF18-2902A2
<b>Wow and Flutter:</b>	0.05 % (RMS) weighted at 19 cm/s (7½ ips) 0.08 % (RMS) weighted at 9.5 cm/s (3¾ ips) ±0.07 % (DIN) at 19 cm/s (7½ ips) ±0.10 % (DIN), at 9.5 cm/s (3¾ ips)	<b>Motors:</b>	Capstan: IC-624G Reel : IC-638R (2)
<b>Overall Distortion:</b>	1.2 %	<b>Semiconductors:</b>	1 IC, 2 FETs, 56 transistors, 42 diodes
<b>Record Bias Frequency:</b>	Approximately 160 kHz	<b>Dimensions:</b>	435 (w) x 451 (h) x 221 (d) mm 17½ (w) x 17¾ (h) x 8¾ (d) inches
		<b>Weight:</b>	24 kg, 52 lb 15 oz

SONY  
SERVICE MANUAL

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*When ordering replacement parts, use PART NUMBERS listed in Parts Lists or shown in EXPLODED VIEWS.*

*Parts List reference numbers should not be used.*

## MODEL IDENTIFICATION

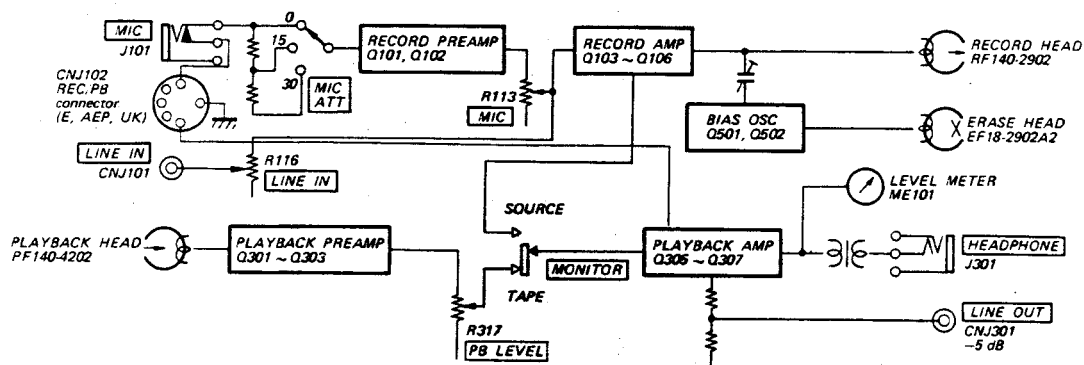
(See specification label.)

<i>Model</i>	<i>Identification on specification label</i>
USA	AC 120V 60 Hz 100W SUPERSCOPE
E	AC 100, 110, 127, 220, 240V 50/60 Hz 55W
AEP, UK	110, 127, 220, 240V ~ 50/60 Hz 110W

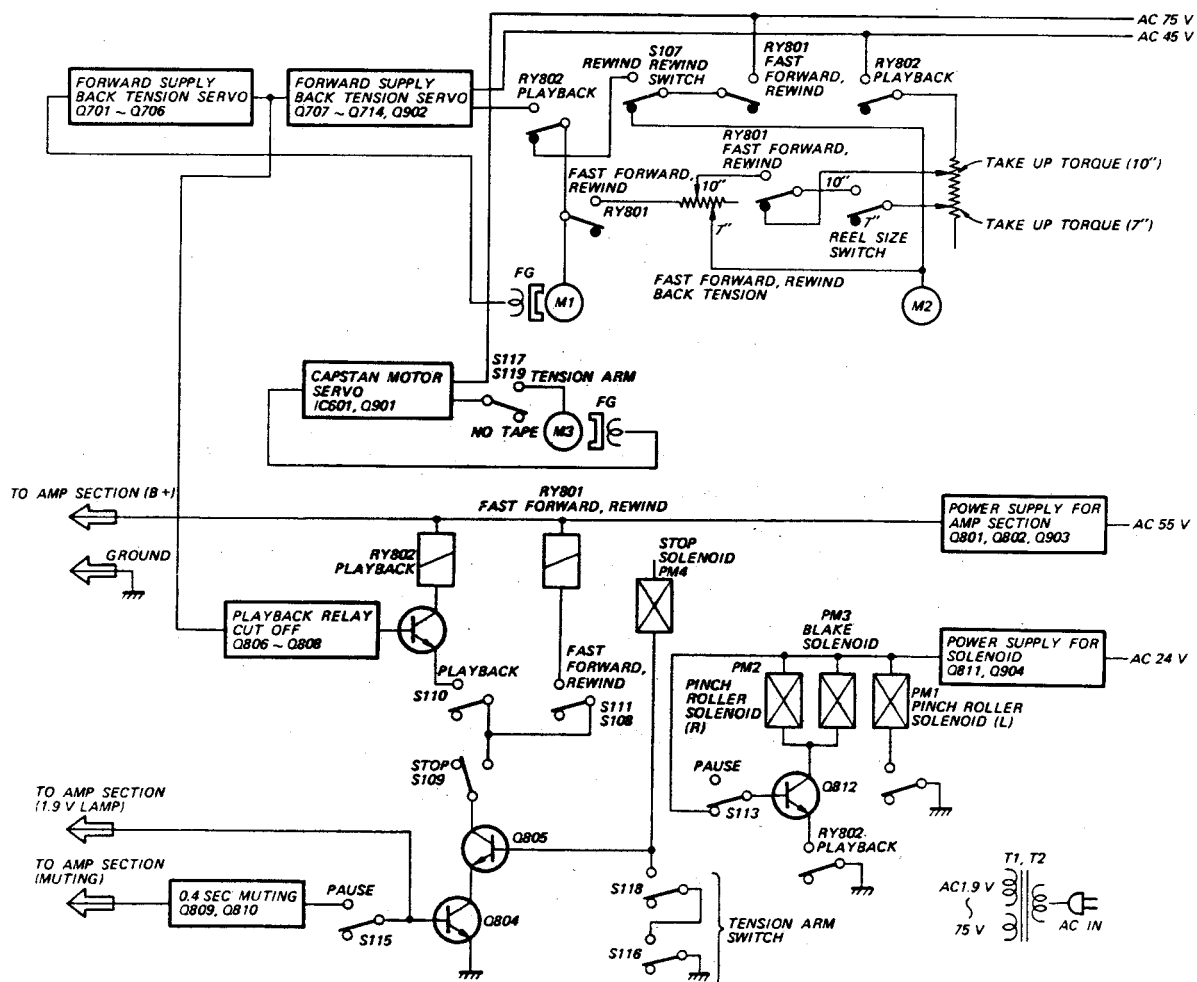
## SECTION 1 DIAGRAMS

### 1-1. BLOCK DIAGRAMS

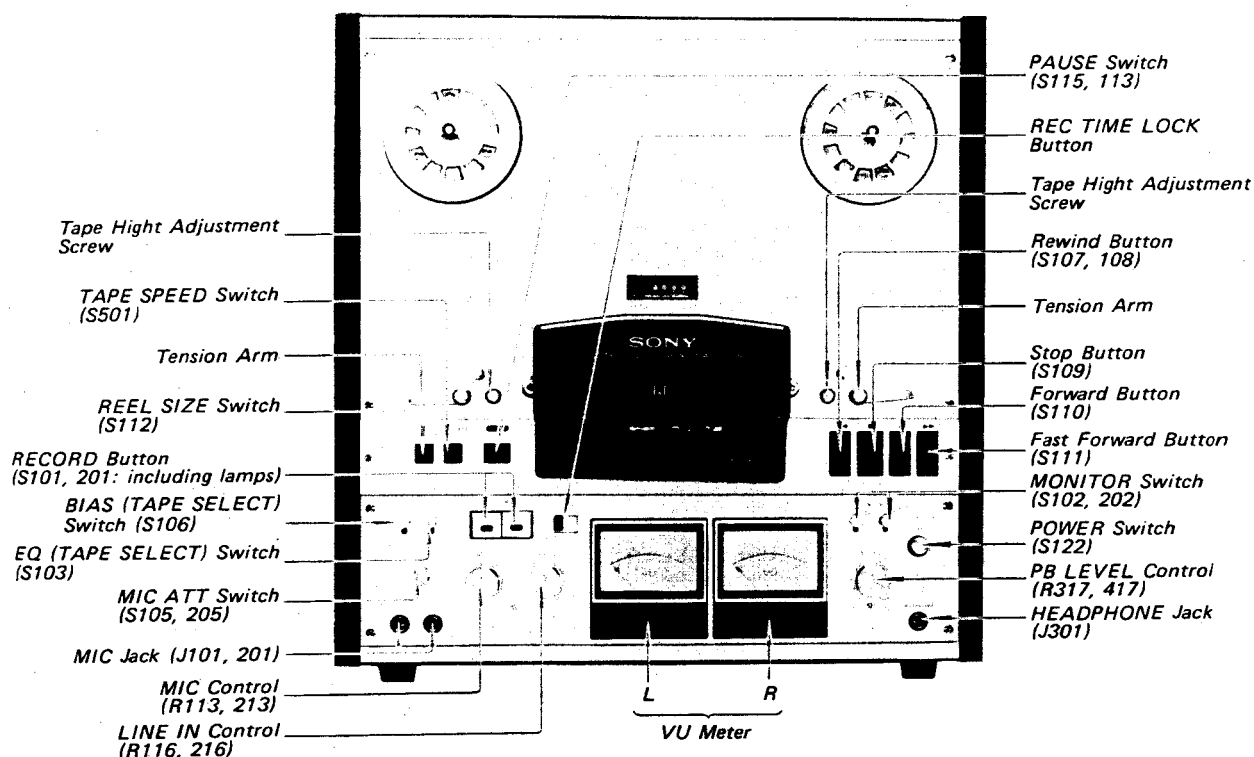
#### Amp Section



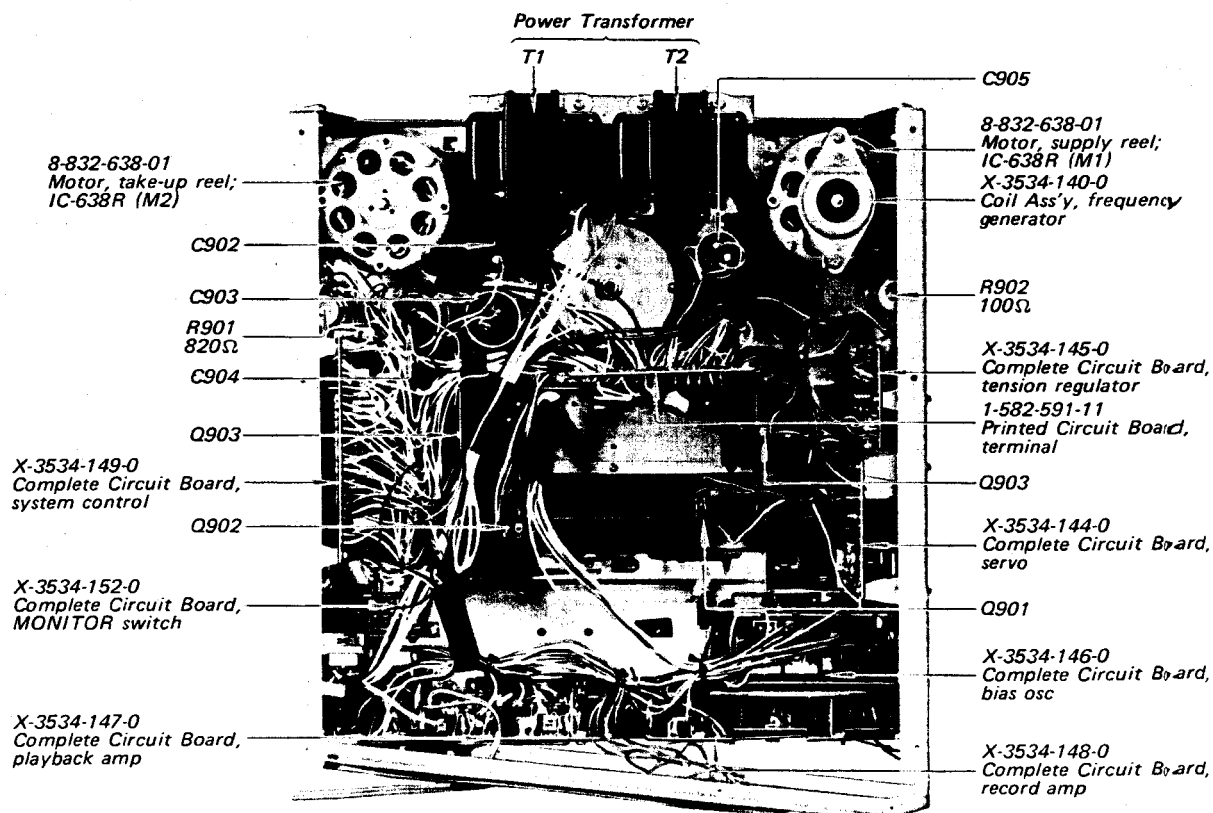
#### System Control Section



## 1-2. EXTERNAL VIEW

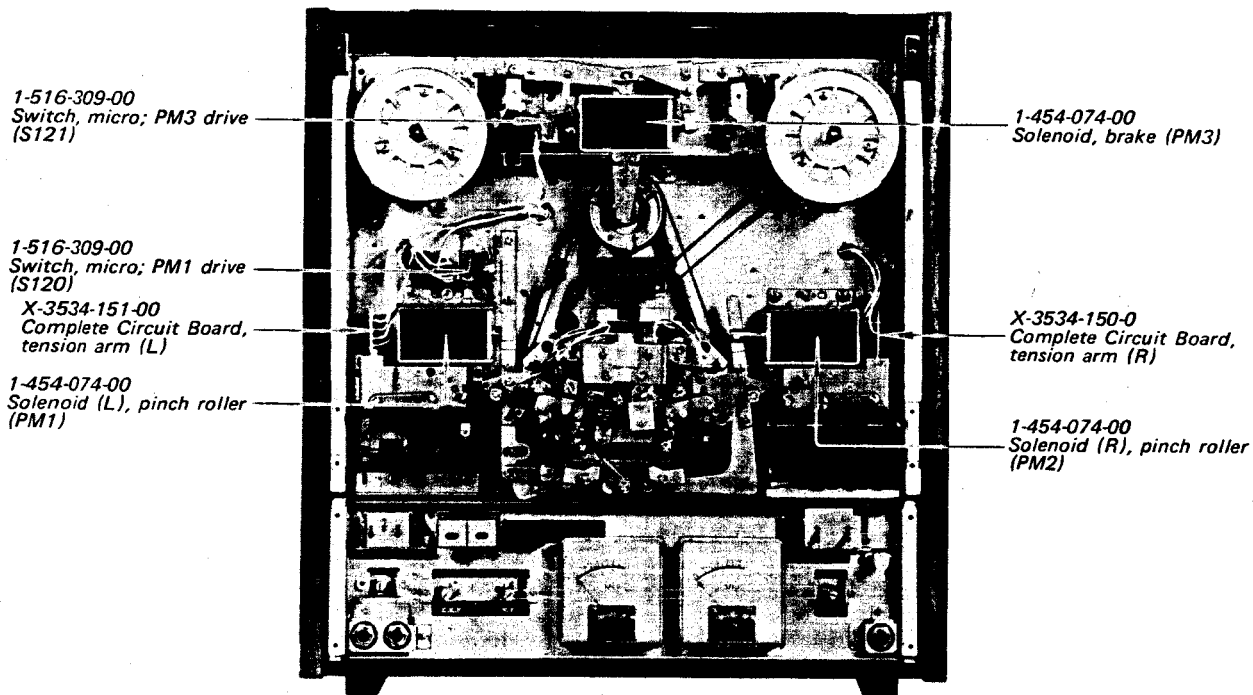


## 1-3. INTERNAL VIEW (1)

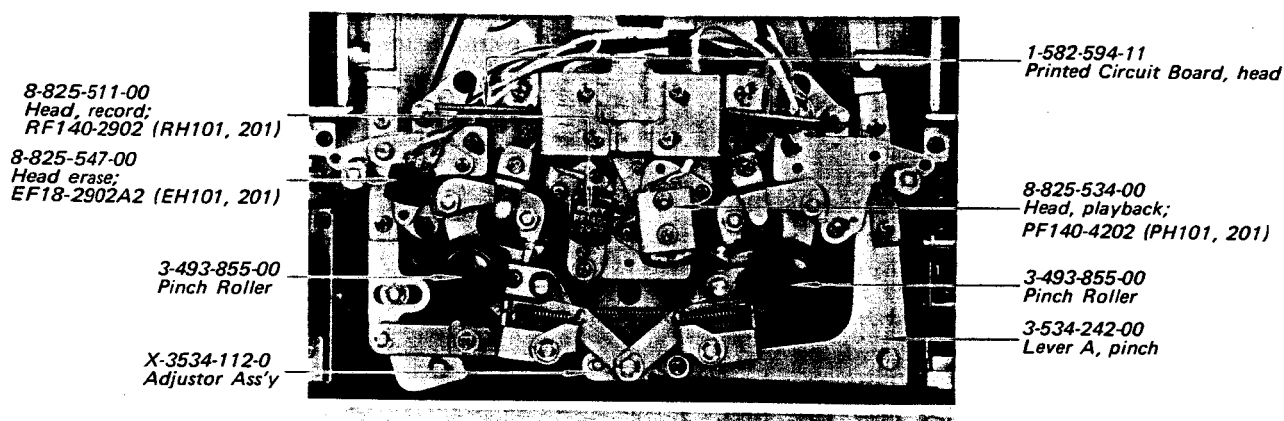




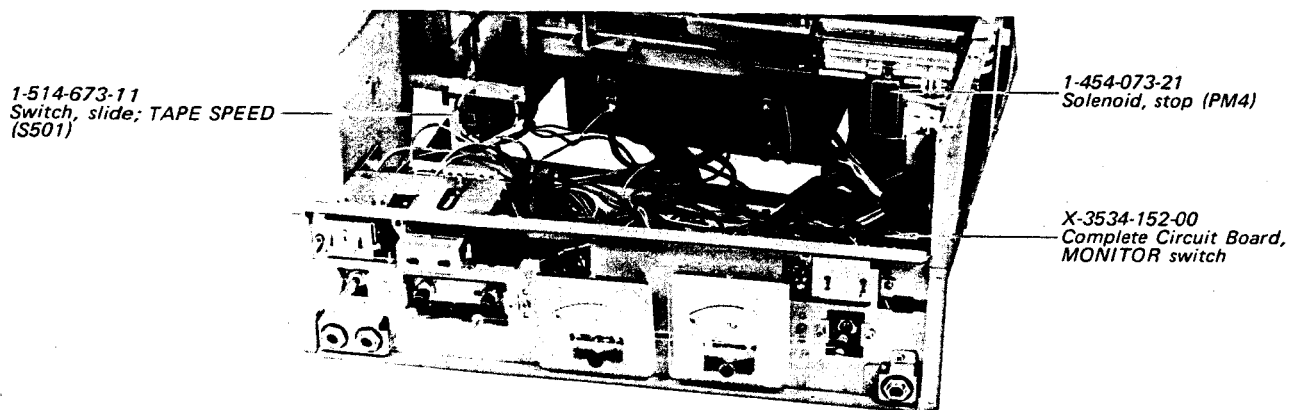
1-4. INTERNAL VIEW (2)



1-5. INTERNAL VIEW (3)

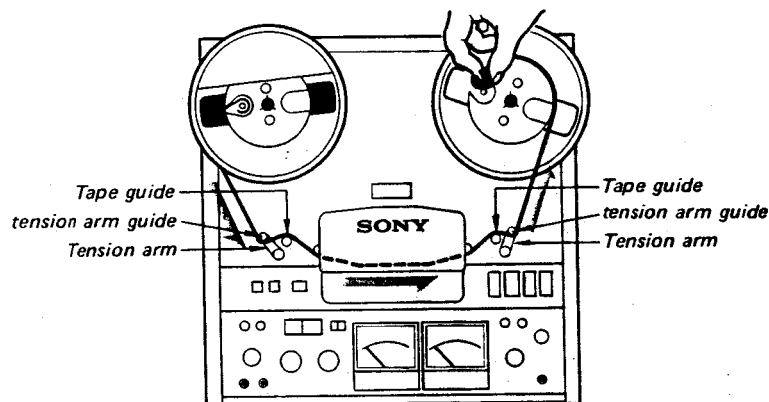


1-6. INTERNAL VIEW (4)



## 1-7. NOTES ON OPERATION

1. For 270 mm (10½ inch) metal reel, use a reel spacer and a Sony Reel Adaptor RAD-10.
2. Thread a tape as illustrated. Be sure to pass the tape under the tension-arm guides, and above the tape guides.



3. For protection against the high bias voltage the upper head cover is fastened with the two head cover bosses.
4. Set the BIAS and EQ (TAPE SELECT) switches according to the tape used.

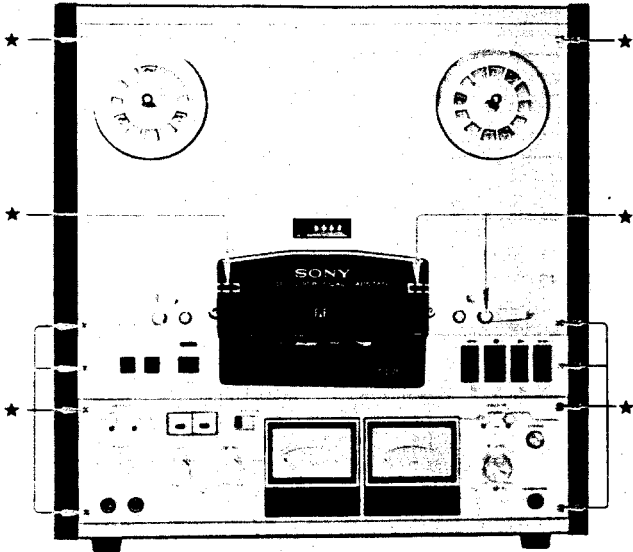
BIAS switch	EQ switch	Tapes
LOW	NORMAL	SONY SUPER 150, SUPER A TDK 150 SCOTCH 150 Other 150 type tapes
LOW	SPECIAL	SONY SLH MAXELL LNE 35 AGFA PE 35 BASF LP 35, 35LH
HIGH	NORMAL	SCOTCH 203, 206 TDK SD 150
HIGH	SPECIAL	When using some tapes, frequency response range may be wide but distortion level may be high.

5. Do not leave the TC-755 in PAUSE mode for a long time, since the normal rated voltages are still applied to the reel motors in PAUSE mode. Place the TC-755 in stop mode instead.
6. REC TIMER LOCK button can be moved to the right only when L and/or R RECORD buttons are pushed in stop mode. Once the RECORD buttons are locked, they cannot be released and remain illuminated even though any function button (stop, fast forward, rewind or forward button) is pushed. The TC-755 can be placed in record mode only by pushing the forward button, but not by pushing the stop, fast forward or rewind button.
7. Before setting the timer-activated recording, be sure to turn POWER switch OFF. Otherwise the tension arms may be turned OFF by the momentary tape slack and the TC-755 may be placed in stop mode.
8. PB LEVEL controls adjust the playback signal level at the LINE OUTputs and the HEADPHONE jack. This adjustment reflects on VU meters with a 0 VU reading corresponding to 0.43 volt output. During normal use, set the inner knob (R channel) to the center click position and align the outer knob (L channel) with the inner knob.
9. The TC-755 is designed only for vertical use, and therefore no rubber feet are provided for horizontal use.
10. All function buttons except the stop button have self lock mechanisms.

## 1-8. NOTES ON REPAIR

### 1. Disassembly

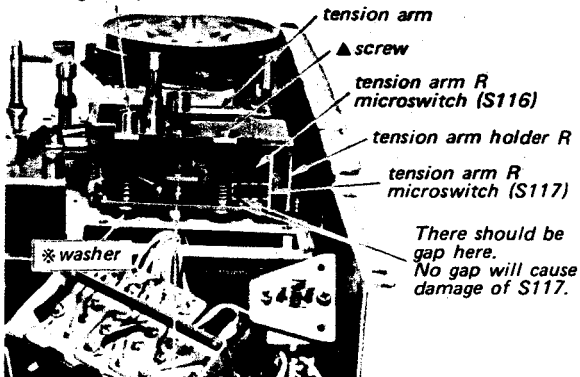
To remove the reel panel, unscrew the 14 screws indicated by ★ in the photo below. To remove the cabinet, unscrew the 10 screws attached to the cabinet (4 screws on both sides and 6 screws on the back).



2. When turning the tape height adjustment screw, the following precaution must be taken: After the screw is turned clockwise as far as it will go, it must not be turned counterclockwise more than  $3\frac{1}{2}$  turns. The tape height may be adjusted with this screw within these limits. If the screw is turned beyond these limits, the washer indicated by \* will be damaged. (See photo.)

The screw indicated by ▲ has been adjusted at the factory and should not be turned. If, however, it happens to be turned, care must be taken that the microswitch (S117) is not touched by the tension arm spacer even if the tape height adjustment screw is turned within the limits mentioned above. Otherwise S117 will be damaged.

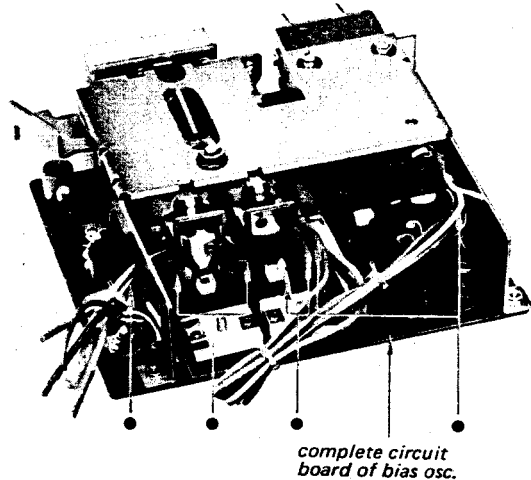
tape height adjustment screw



tension arm spacer

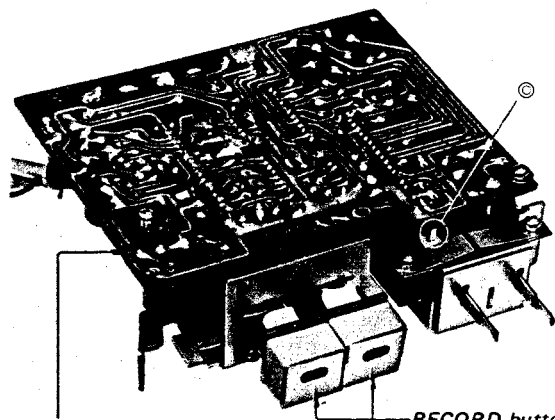
3. Lead wires for the complete circuit board of the bias oscillator should be arranged through the areas and between the parts indicated by ● as shown in the photo.

Also, make sure that the lead wires and other parts do not interfere with the ranges within which the switches operate.



complete circuit board of bias osc.

4. Be sure to insert the function spring projection (indicated by ⊙) into the lever of the EQ (TAPE SELECT) switch as shown in the photo.



RECORD buttons

complete circuit board of bias osc.

## SECTION 2 ADJUSTMENTS

### 2.1. MECHANICAL ADJUSTMENTS

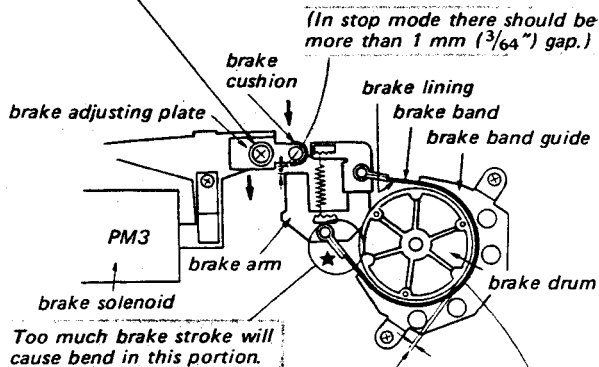
#### 1. Brake Adjustment (1)

Perform this adjustment for both left and right brakes. After the adjustment, apply locking compound to the adjusted screw.

— Playback mode —

**adjustment screw**  
Adjust the brake adjusting plate for the appropriate brake stroke.

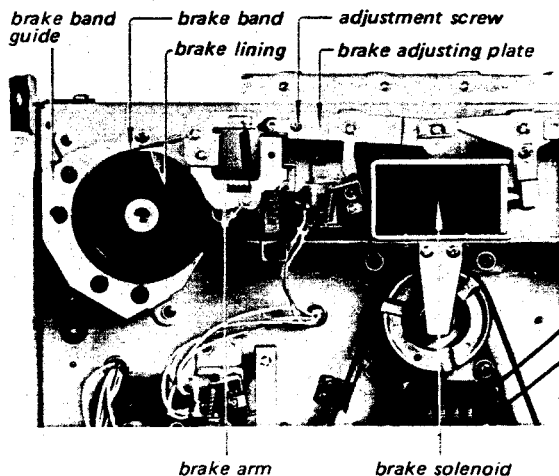
— Right side —



In playback mode (When PM3 solenoid is energized,) the gap between the brake drum and the brake lining should uniformly be more than 0.5 mm ( $1/32$ ”).

In playback mode (When PM3 solenoid is energized,) the brake band should uniformly contact the brake band guide.

— Left side —



#### 2. Brake Adjustment (2)

Perform this adjustment for both left and right brakes. After the adjustment, apply locking compound to the adjusted screw.

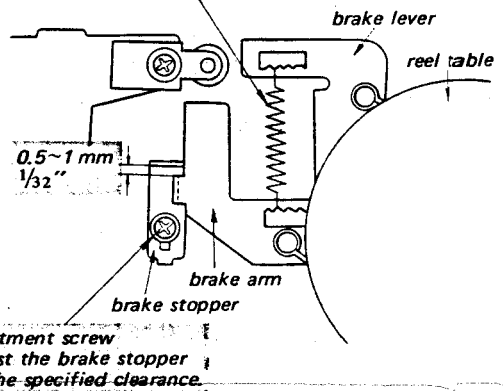
Specification:

Take-up Reel	Supply Reel	Brake Torque
clockwise	counterclockwise	800~2,500 g.cm (11.1~34.8 oz.-inch)
counterclockwise	clockwise	600~700 g.cm (8.3~9.7 oz.-inch)

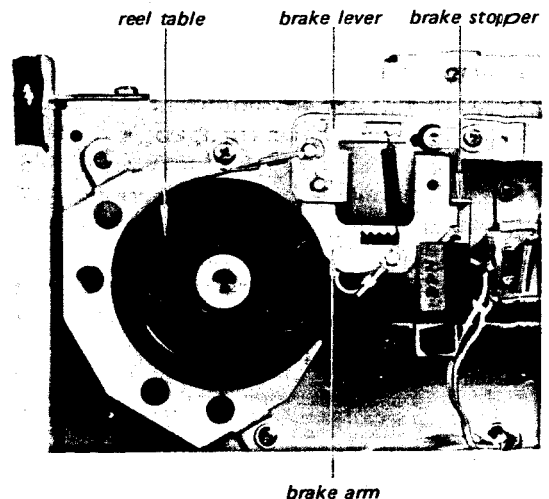
— Stop mode —

— Right side —

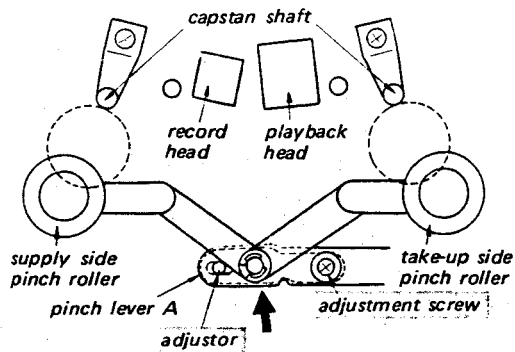
Change the hooking position of the spring for the specified brake torque.



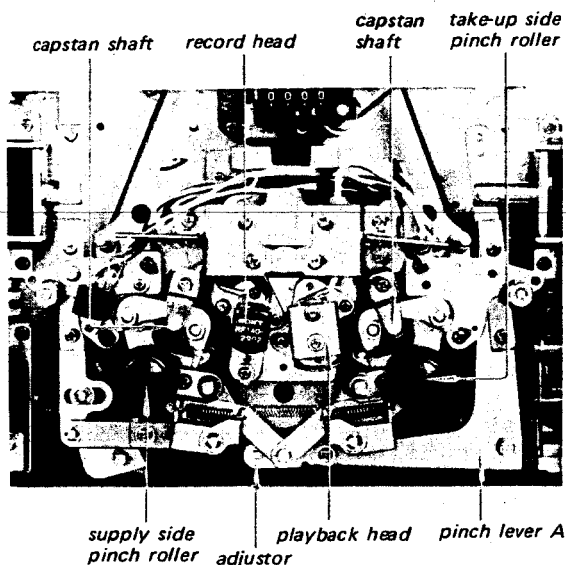
— Left side —



### 3. Adjustor Adjustment

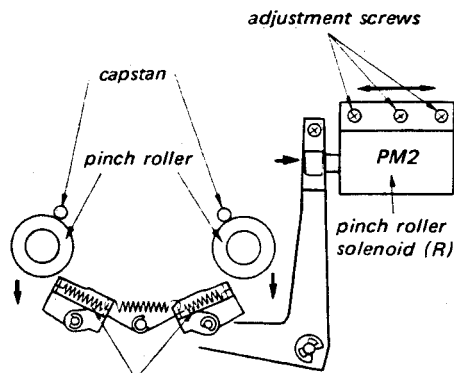


In playback mode and with PAUSE switch to ON, slowly push the pinch lever A in the direction shown by the arrow. When the supply side pinch roller contacts the capstan shaft and starts to rotate, the gap between the take-up side pinch roller and the capstan shaft should be less than 0.5 mm ( $1/64$ "), so that the take-up side pinch roller starts rotating slightly after or almost simultaneously with the start of the supply side pinch roller, if necessary, adjust the adjustor.



### 4. Pinch Roller Solenoid (R) (PM2) Position Adjustment

After the adjustment, apply locking compound to the adjusted screws.

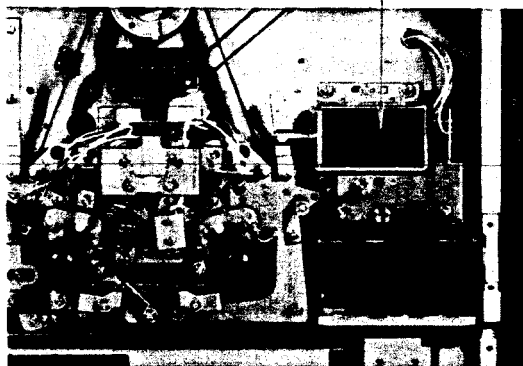


*These two springs should expand 0.5 mm ( $1/64$ ") longer after the pinch rollers contact the capstans in playback mode. If necessary, adjust the PM2 solenoid position.*

Specification for your reference:

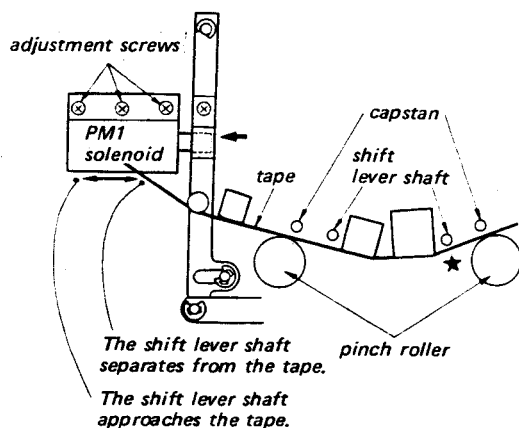
Pinch roller pressure: 1000 g ~ 1600 g (2 lb 3 oz ~ 3 lb 8 oz)

pinch roller solenoid (R) (PM2)



### 5. Pinch Roller Solenoid (L) (PM1) Position Adjustment

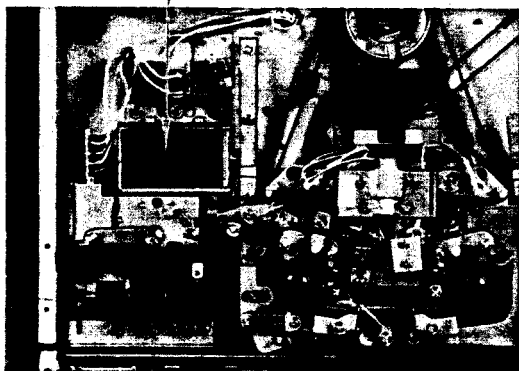
After the adjustment, apply locking compound to the adjusted screws.



With a tape threaded along the tape path and in playback mode (PM1 solenoid should be energized), turn PAUSE switch ON. At this time the shift lever shafts should not contact the tape and the pinch rollers should separate from the capstans. If necessary, adjust the PM1 solenoid position.

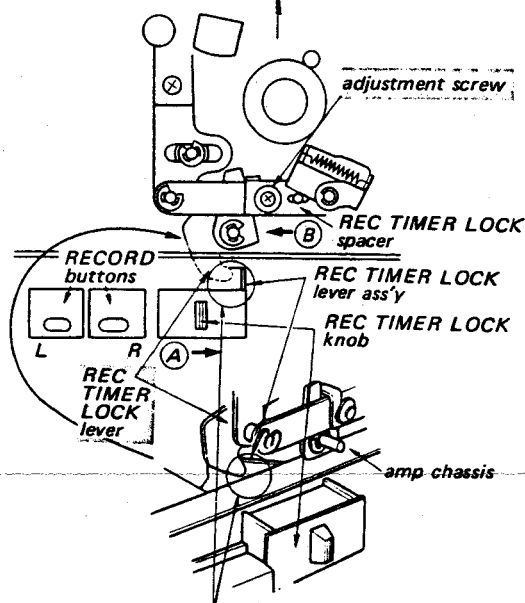
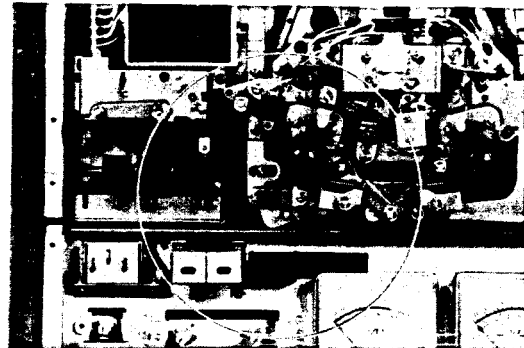
**Note:** The shift lever shaft indicated by ★ in the above figure may slightly contact the tape but the other one should not.

Pinch Roller Solenoid (L) (PM1)



### 6. RECORD Button Lock Adjustment

After the adjustment, apply locking compound to the adjusted screw.



Push L and R RECORD buttons, move REC TIMER LOCK knob in the direction shown by arrow (A) and then push the 'forward' button. At this time REC TIMER LOCK lever should slightly contact REC TIMER LOCK lever ass'y as shown. If necessary, adjust the REC TIME LOCK spacer.

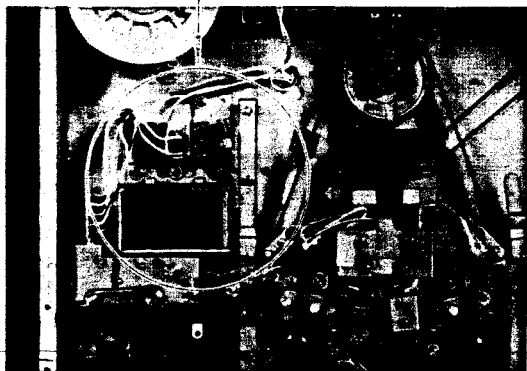
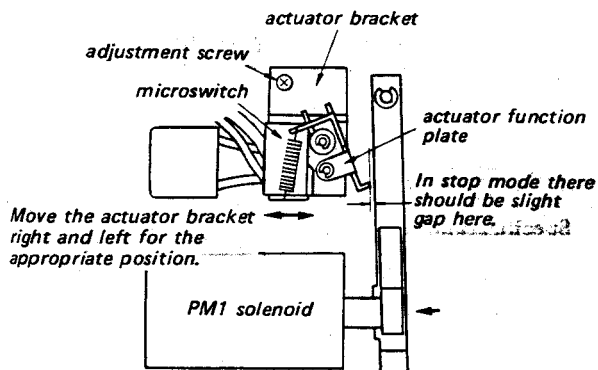
#### **Note:**

After the adjustment, and with the L and R RECORD buttons pushed and the REC TIMER LOCK knob pushed in the direction shown by arrow (A), and also the forward button pushed, make sure of the following functions.

1. RECORD buttons cannot be released by releasing REC TIMER LOCK knob.
2. REC TIMER LOCK knob cannot be released by moving the REC TIMER LOCK knob further in the direction shown by the arrow (A).
3. Push L and R RECORD buttons and then push forward button. At this time the RECORD buttons should not be released.
4. In stop mode L and R RECORD buttons should be released.
5. When L and R RECORD buttons are released, REC TIMER LOCK knob cannot be moved in the direction shown by the arrow (A).

### 7. Actuator Adjustment (1)

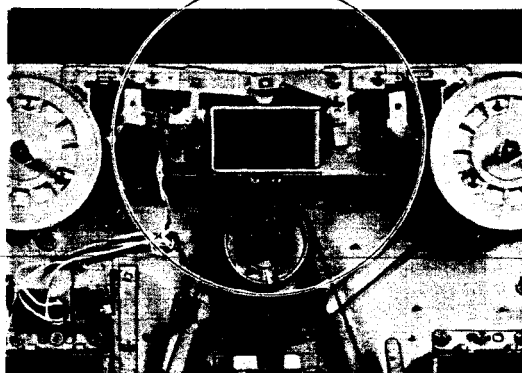
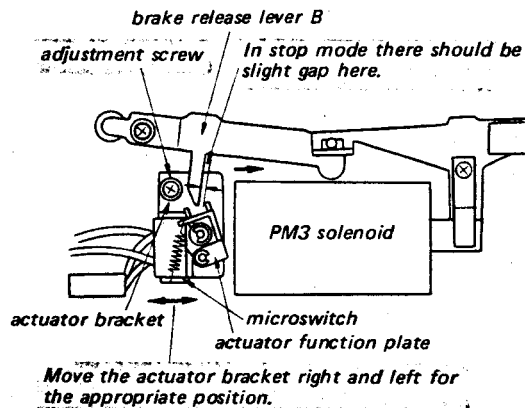
Perform this adjustment after the Pinch Roller Solenoid (L) (PM1) Position Adjustment. After the adjustment, apply locking compound to the adjusted screw.



**Note:** The microswitch should turn OFF (click) in 0.5 to 2 seconds after forward button is pushed.

### 8. Actuator Adjustment (2)

Perform this adjustment after the Brake Adjustments (1) and (2). After the adjustment, apply locking compound to the adjusted screw.



**Note:** The microswitch should turn OFF (click) in 0.5 to 2 seconds after forward button is pushed.

### 9. Fast Forward and Rewind Back-Tension Adjustment

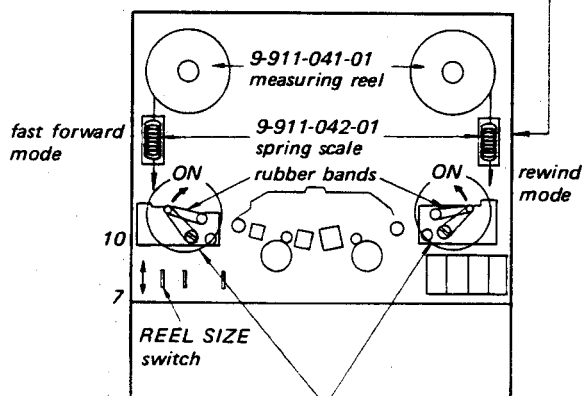
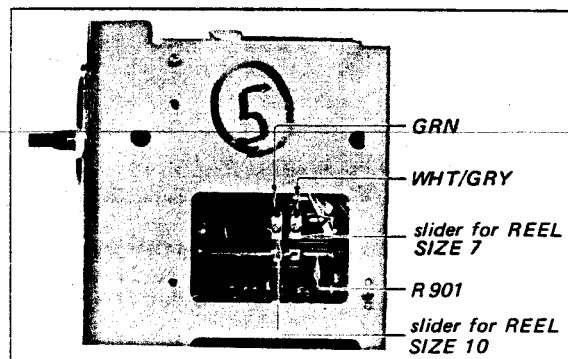
1. Supply the rated power voltage.
2. Fasten the tension arms with rubber bands as shown, thus activating them.
3. Pull the spring scale at a speed of between 9.5 cm/s to 19 cm/s in the direction shown by the arrow for rewind or fast forward mode with REEL SIZE switch at "7" and "10". Measure the back tension torque for rewind and fast forward modes. Torques should be as shown in the following table.

Specification:

Mode	REEL SIZE Switch	Back-Tension Torque
rewind	10	110 to 140 g·cm (1.53 to 1.95 oz·inch)
	7	80 to 100 g·cm (1.11 to 1.39 oz·inch)
fast forward	10	110 to 140 g·cm (1.53 to 1.95 oz·inch)
	7	80 to 100 g·cm (1.11 to 1.39 oz·inch)

If necessary, adjust the torque by moving the sliders of the adjustable resistor (R901).

— Right side —



Fasten the tension arms with rubber bands to operate the unit.

### 10. Playback Take-up Torque Adjustment

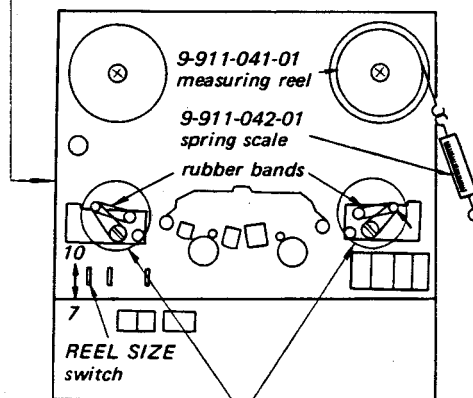
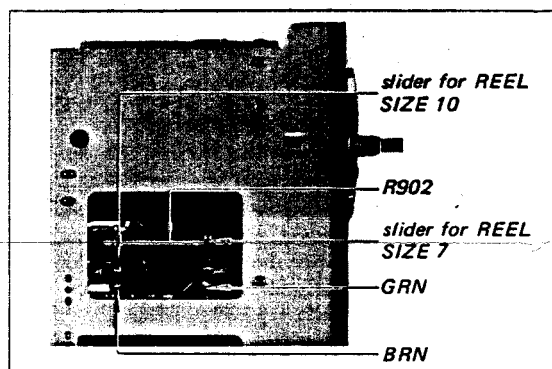
1. Supply the rated power voltage.
2. Fasten the tension arms with rubber bands as shown, thus activating them.
3. Turn the TAPE SPEED switch to "19 cm 7½."
4. Place the unit in playback mode.
5. Pull the spring scale in the direction shown by the arrow and measure the take-up torque with REEL SIZE switch at "10" and "7". Torques should be as shown in the following table.

Specification:

REEL SIZE switch	Take-up Torque
10	580 to 620 g·cm (80.5 to 86.1 oz·inch)
7	280 to 320 g·cm (38.9 to 44.5 oz·inch)

If necessary, adjust the torque by moving the sliders of the adjustable resistor (R902).

— Left side —



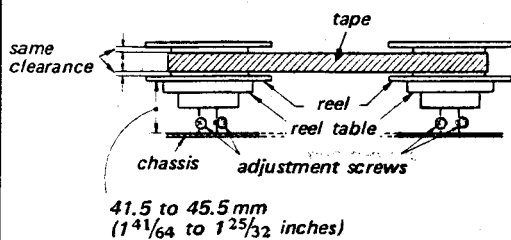
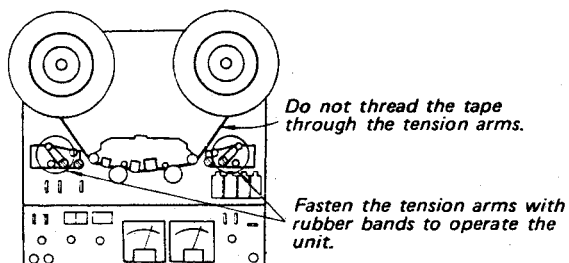
Fasten the tension arms with rubber bands to operate the unit.



### 11. Reel Table Height Adjustment

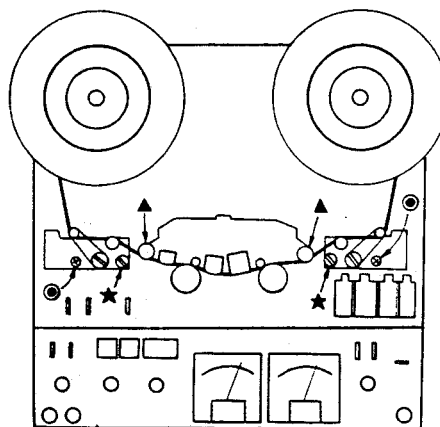
After the adjustment, apply locking compound to the adjusted screws.

1. Thread the tape from a 180 mm (7 inches) plastic reel as shown.
2. Fasten the tension arms with rubber bands as shown.
3. Adjust the reel table height so that the tape travels in the center of both reel flanges in fast forward and rewind modes.



### 12. Tape Guides Adjustment (1)

1. Thread the tape from a 180 mm (7 inches) plastic reel as shown.
2. Turn the two screws indicated by ★ counterclockwise until it stops, and then turn them clockwise in 1¼ turns.
3. Turn the two screws indicated by ● so that the tape travels in the center of both reel flanges in rewind and fast forward modes.
4. Turn the two tape guides indicated by ▲, for fine adjustment, so that the tape travels in the center of the guides without tape curl in playback mode.
5. When the tape curls, repeat the above steps.

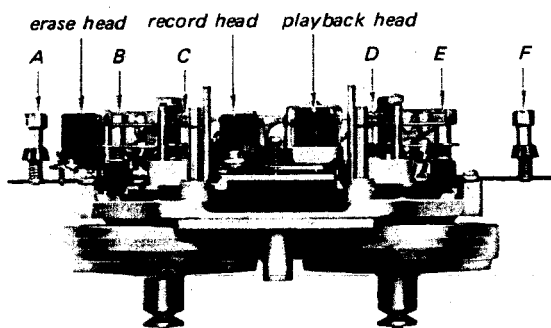
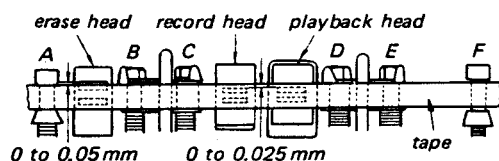


### 13. Tape Guide Adjustment (2)

Perform this adjustment after the reel table height adjustment and the tape guides adjustment (1) are completed. Tape should not curl at each tape guide B, C, D and E.

If necessary, adjust the tape guides B, C and E with the tape guide D as standard.

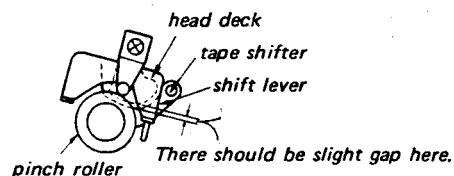
- Note:**
1. Make sure that the three heads are correctly positioned as specified. If necessary, perform the head height adjustments on page 19 and 21.
  2. If all the tape guides B, C, D and E are not correctly positioned, adjust them so that the tape travels in the center of the pinch roller.



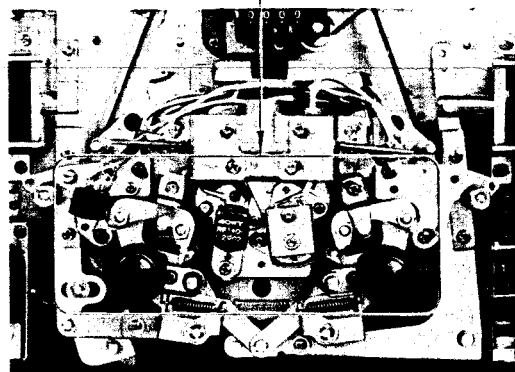
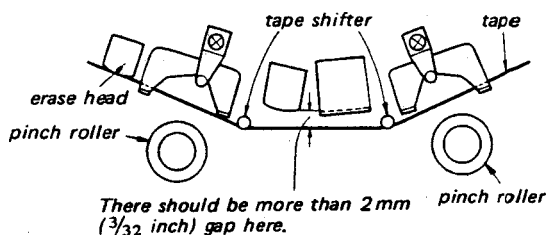
### 14. Tape Shifter Position Check.

Perform this check for both left and right shifters with the unit in horizontal position.

1. In playback mode the shift levers should not touch the head deck.

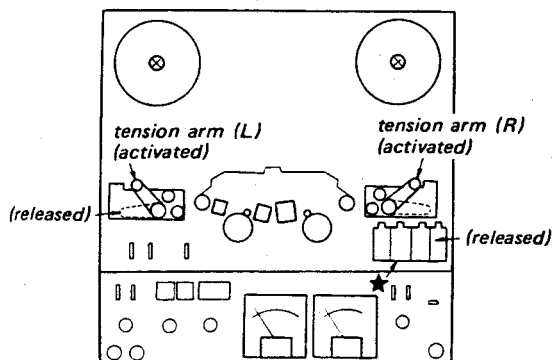


2. At tape end in rewind and fast forward modes, there should be more than 2 mm ( $\frac{3}{32}$  inch) gap between the tape and the record and playback heads. At this time the tape may touch the erase head.



### 15. Function Switch Operation Check

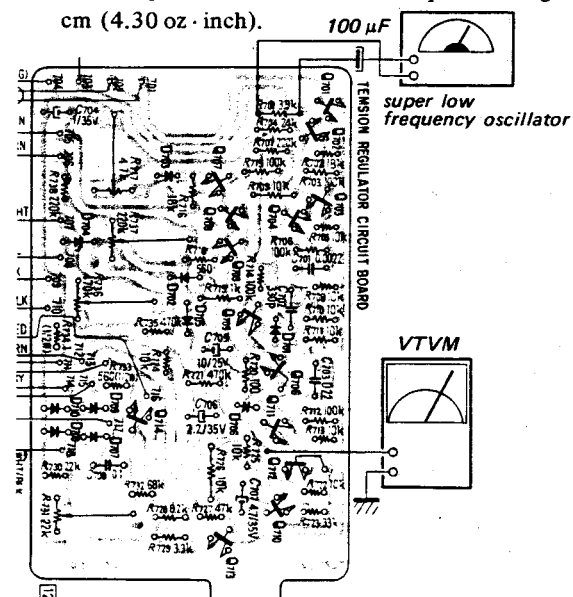
1. Push the POWER switch ON with the tension arms released. Next push each function button. No operation should take place, and each function button should not lock.
2. When the tension arm L and/or R are activated, the stop solenoid should be de-energized. The solenoid can be seen when looked at in the direction of the arrow indicated by ★. When the solenoid is de-energized, a click can be heard.
3. Activate the tension arm L or R, and make sure of the following functions.
  - 3-1. Push the forward button. The button should lock. When the activated tension arm is released, the locked button should release itself.
  - 3-2. Push the forward button. Then push the stop button. At this time, the locked forward button should release itself.
  - 3-3. Push the forward button. Then push the POWER switch OFF. The locked forward button should remain locked. Next push the POWER switch ON. The forward button should still remain locked.
  - 3-4. Push the fast forward button. The button should lock. When the activated tension arm is released, the locked button should release itself.
  - 3-5. Push the fast forward button. Then push the stop button. At this time the locked button should release itself.
  - 3-6. Push the rewind button. The button should lock. When the activated tension arm is released, the locked button should release itself.
  - 3-7. Push the rewind button. Then push the stop button. At this time the locked button should release itself.



### 16. Tension Regulator Adjustment (Not normally performed)

**Note:** For this adjustment a super low frequency oscillator (3 Hz to 10 Hz) is required. Without the oscillator, do not perform this adjustment and only replace the defective parts. When adjusting adjustable resistors, turn them in the direction of increasing torque, so that the torque rises to the specified value.

1. Supply the rated power voltage.
2. Unsolder the three lead wires of the FG (frequency generator) coil in the supply reel motor M1, connect a super low frequency oscillator of 1Vp-p output across R701 through a 100μF electrolytic capacitor.
3. Set TAPE SPEED switch to "9.5 cm 3/4" and REEL SIZE switch to "10".
4. Adjust the oscillator frequency so that the voltage between the emitter of Q712 transistor and the chassis ground is 9 volts in playback mode.
5. With the frequency adjusted in step 4, adjust R731 so that the supply motor torque is 250 g·cm (3.47 oz·inch).
6. Change the oscillator frequency to 10 Hz and adjust R717 so that the torque is 80 g·cm (1.11 oz·inch).
7. Change the oscillator frequency to 3.3 Hz and adjust R736 so that the torque is 310 g·cm (4.30 oz·inch).
8. Repeat steps 6 and 7 once more.
9. Set TAPE SPEED switch to "19 cm 7 1/2" and change the oscillator frequency to 6.6 Hz. Then adjust R737 so that the torque is 310 g·cm (4.30 oz·inch).



## 2.2. ELECTRICAL ADJUSTMENTS

### Precaution:

- Clean the following parts with a swab moistened with alcohol:
 

record head	pinch roller
playback head	rubber belts
erase head	idlers
capstan	tape guides
- Demagnetize record, playback and erase heads with a head demagnetizer.
- Do not use magnetized screwdriver for adjustments.
- After adjustments, apply locking compounds to the adjusted parts.
- Adjustments should be performed in the order listed in this service manual.
- Adjustments and measurements should be performed for each L and R channel with the rated power supply voltage unless otherwise specified.
- Switches and controls, which are not given in "Settings" for the each adjustment, can be set in any modes or positions. Power switch, however, should be ON unless otherwise noted.

### Test Equipment/Tools Required:

audio oscillator (af osc)  
 VTVM  
 VOM  
 attenuator (600 $\Omega$ )  
 digital frequency counter or speed checker (SONY LFM-30)  
 oscilloscope  
 resistors: 600 $\Omega$ , 10 k $\Omega$ , 100 k $\Omega$   
 SONY test tape  
 J-19-F2

Tone:	1	2	3	4	5	6	7
Frequency: (Hz)	400	400	10 k	12.5 k	7 k	80	40
Level (dB):	0	-10	-10	-10	-10	-10	-10

J-19-A2 (12.5 kHz, -10 dB)

SPC-47 (4 kHz, 0 dB)

blank tapes (completely erased)

NPS-1 (for NORMAL record)

SLH-S1 (for SPECIAL record)

### Normal Input Level

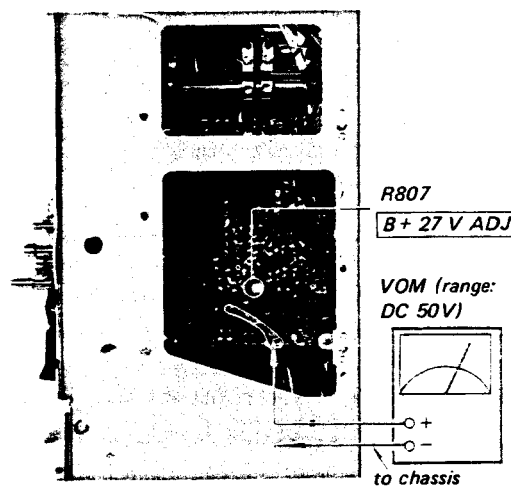
	Impedance	Level
MIC	300 $\Omega$	-60 dB (0.77 mV)
LINE IN	10 k $\Omega$	-10 dB (0.25 V)

### Normal Output Level

	Load Impedance	Level
LINE OUT	100 k $\Omega$	-5 dB (0.44 V)
HEADPHONE	8 $\Omega$	-28 dB (31 mV)

### 1. B + 27V Adjustment

#### Settings:



#### Procedure:

Adjust R807 for 26.5 to 27.0V DC on VOM.

**Note:** The ripple voltage should be less than 1 mV p-p.

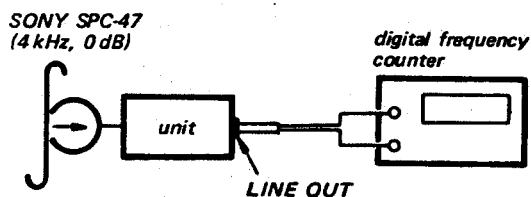
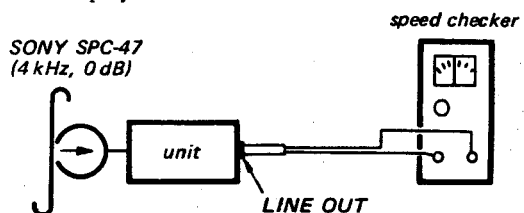
## 2. Tape Speed Adjustment

### Settings:

REEL SIZE switch: 7  
 TAPE SPEED switch: 19 cm, 7½ and 9.5 cm, 3¾  
 EQ (TAPE SELECT) switch: NORMAL  
 MONITOR switch: TAPE  
 PB LEVEL control: mechanical mid

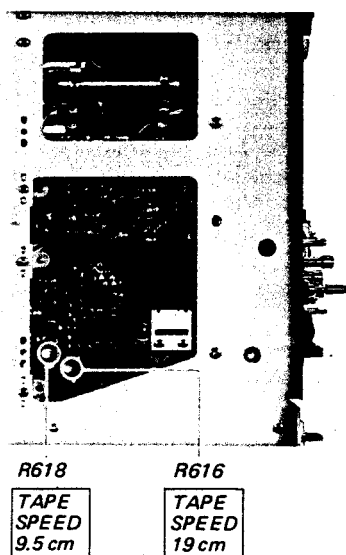
### Procedure:

Mode: playback



TAPE SPEED	Adjust	Specification	
		speed checker	digital frequency counter
19 cm, 7½	R616	-1 ~ +1%	3,960 ~ 4,040 Hz
9.5 cm, 3¾	R618	-1 ~ +1%	1,980 ~ 2,020 Hz

### Adjustment Location:



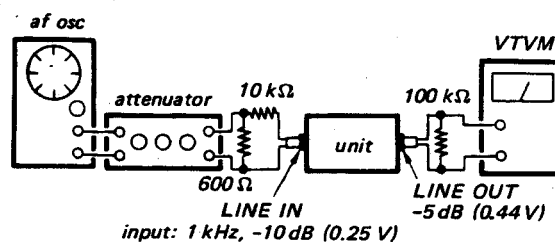
## 3. Meter Level Adjustment

### Settings:

EQ (TAPE SELECT) switch: NORMAL  
 MONITOR switch: SOURCE  
 PB LEVEL control: mechanical mid

### Procedure:

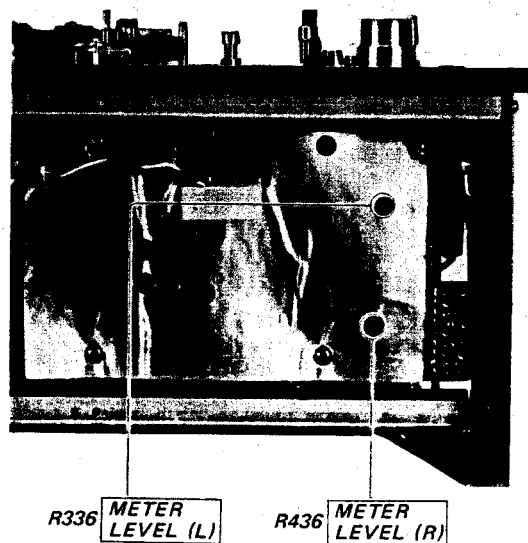
1. Calibrate the level meters for 0% indication with POWER switch OFF.
2. Adjust LINE IN control for -5 dB (0.44 V).



3.

Adjust	Remarks
R336 (L channel)	0 VU on the level meters
R436 (R channel)	

### Adjustment Location:



#### 4. Playback Head Angle Adjustment

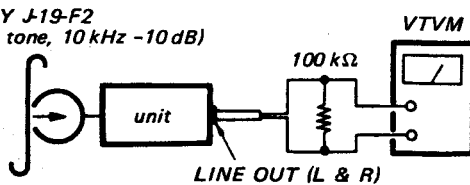
##### Settings:

REEL SIZE switch: 7  
 TAPE SPEED switch: 19 cm, 7½  
 EQ (TAPE SELECT)  
 switch: NORMAL  
 MONITOR switch: TAPE  
 PB LEVEL control: mechanical mid

##### Procedure:

Mode: playback

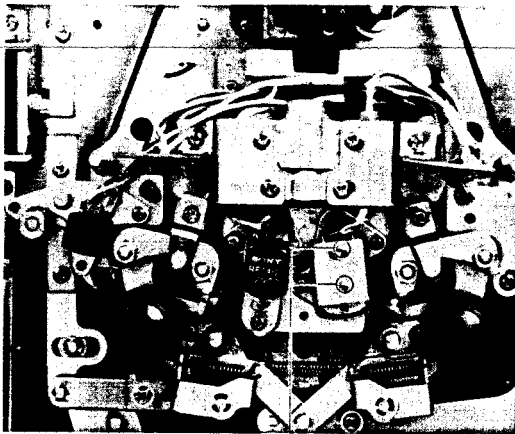
SONY J-19-F2  
 (3rd tone, 10 kHz -10 dB)



Loosen the adjustment screws and correctly position the playback head for the highest VTVM reading.

**Note:** Slightly touch the supply reel and at this time the VTVM reading deviation should be less than 1 dB.

##### Adjustment Location:



playback head angle adjustment screws.

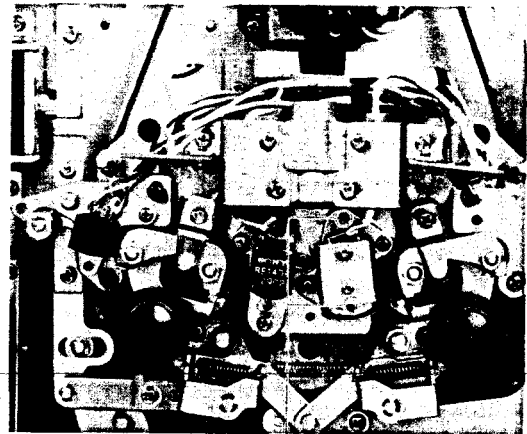
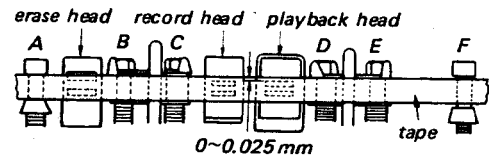
#### 5. Playback Head Height Adjustment

##### Settings:

REEL SIZE switch: 7  
 TAPE SPEED switch: 19 cm, 7½

##### Procedure:

Play back a tape and align the tape edge and the playback head core as shown by turning the height and zenith adjustment screws.



playback head height and zenith adjustment screws.

## 6. Playback Head Azimuth and Phase Adjustments

### Settings:

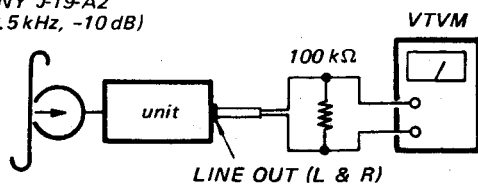
REEL SIZE switch: 7  
 TAPE SPEED switch: 19 cm, 7½  
 EQ (TAPE SELECT) switch: NORMAL  
 MONITOR switch: TAPE  
 PB LEVEL control: mechanical mid

### Procedure:

If an oscilloscope is available, employ Procedure 2.  
 If a simplified test is to be made, follow Procedure 1.

#### 1. Mode: playback

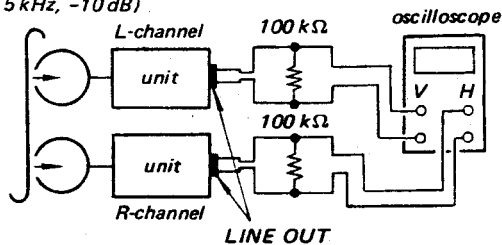
SONY J-19-A2  
 (12.5 kHz, -10 dB)



Turn the adjustment screw shown in the photo below for the highest VTVM reading. If the highest peaks for L and R do not coincide, place the adjustment screw to the mechanical mid of the two positions for the peaks.

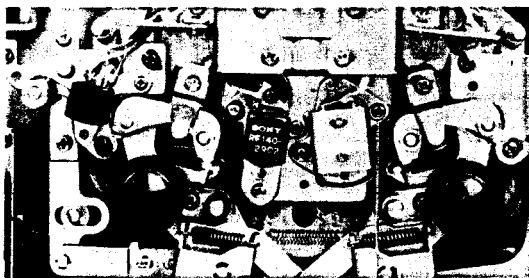
#### 2. Mode: playback

SONY J-19-A2  
 (12.5 kHz, -10 dB)



Adjust	On the oscilloscope			
azimuth adjustment screw				
	in phase	30°	90°	more than 90°
	good			wrong

### Adjustment Location:



playback head azimuth adjustment screw.

## 7. Playback Equalizer Adjustment

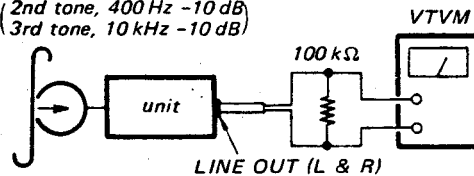
### Settings:

REEL SIZE switch: 7  
 TAPE SPEED switch: 19 cm, 7½  
 EQ (TAPE SELECT) switch: NORMAL  
 MONITOR switch: TAPE  
 PB LEVEL control: mechanical mid

### Procedure:

Mode: playback

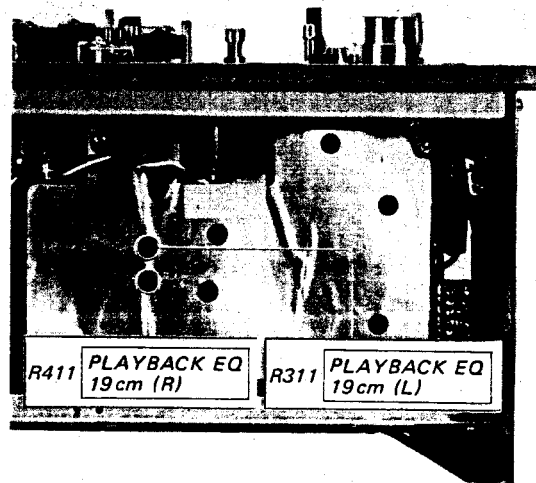
SONY J-19-F2  
 (2nd tone, 400 Hz -10 dB)  
 (3rd tone, 10 kHz -10 dB)



	Adjust	VTVM reading
2nd tone 400 Hz	PB LEVEL control	0 dB (0.775 V)
3rd tone 10 kHz	R311 (L channel) R411 (R channel)	-0.5 dB (0.73 V)

Specification for your reference in case of a more detailed test:

J-19-F2 (TAPE SPEED: 19 cm, 7½)		J-9-F1 (TAPE SPEED: 9.5cm, 3¼)	
400 Hz	0 dB (standard)	400 Hz	0 dB (standard)
10 kHz	-0.5 ± 1 dB	5 kHz	0 ± 2 dB
12.5 kHz	-0.5 ± 1.5 dB	3 kHz	0 ± 1.5 dB
7 kHz	-0.5 ± 1.5 dB	200 Hz	0 ± 1.5 dB
80 Hz	+2 ± 2 dB	80 Hz	+1 ± 2 dB
40 Hz	+1.5 ± 2 dB		



## 8. Playback Level Adjustment

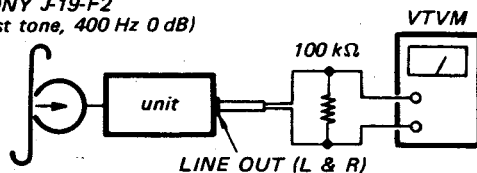
### Settings:

REEL SIZE switch: 7  
 TAPE SPEED switch: 19 cm, 7½  
 EQ (TAPE SELECT) switch: NORMAL  
 MONITOR switch: TAPE  
 PB LEVEL control: mechanical mid

### Procedure:

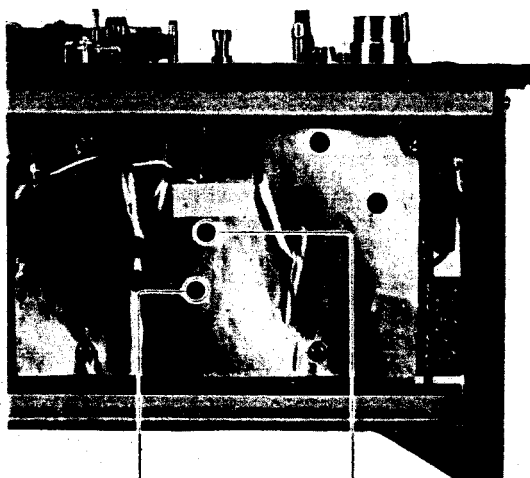
Mode: playback

SONY J-19-F2  
 (1st tone, 400 Hz 0 dB)



Adjust	VTVM reading
R317 (L channel)	0 dB (0.775 V)
R417 (R channel)	allowance : ±1 dB

- Note:** 1. Turn the EQ (TAPE SELECT) switch to SPECIAL position and make sure that the output level lowers by  $2.4 \pm 1$  dB.  
 2. Difference between L and R channels should be within 1 dB.



R417 PLAYBACK LEVEL (R)

R317 PLAYBACK LEVEL (L)

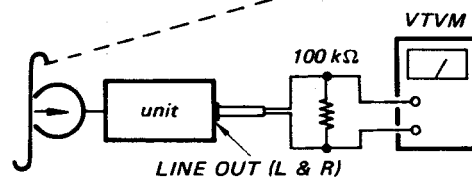
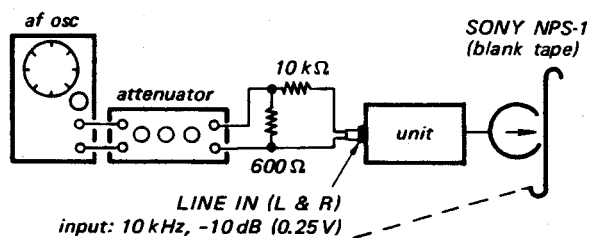
## 9. Record Head Angle Adjustment

### Settings:

REEL SIZE switch: 7  
 TAPE SPEED switch: 19 cm, 7½  
 BIAS (TAPE SELECT) switch: LOW  
 EQ (TAPE SELECT) switch: NORMAL  
 MONITOR switch: TAPE  
 LINE IN control: mechanical mid  
 PB LEVEL control: mechanical mid

### Procedure:

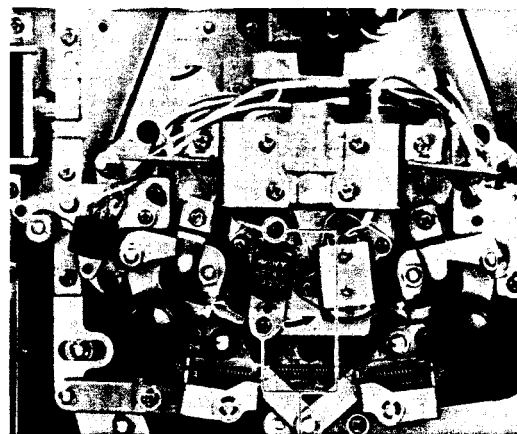
Mode: record and simultaneous playback



Loosen the adjustment screws and correctly position the record head for the highest VTVM reading.

**Note:** Slightly touch the supply reel and at this time the VTVM reading deviation should be less than 1 dB.

### Adjustment Location:



record head angle adjustment screws



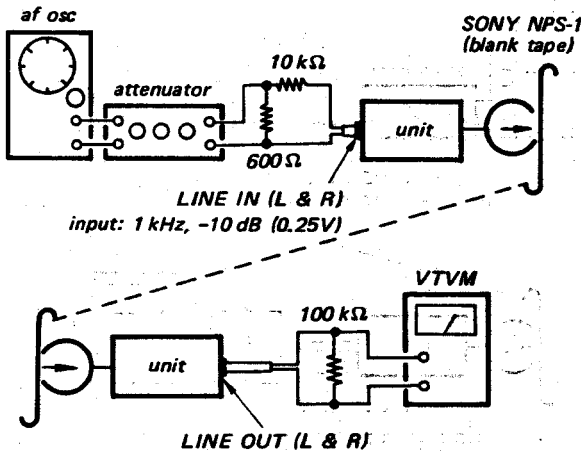
## 10. Record Head Height Adjustment

### Settings:

REEL SIZE switch: 7  
 TAPE SPEED switch: 19 cm, 7½  
 BIAS (TAPE SELECT) switch: LOW  
 EQ (TAPE SELECT) switch: NORMAL  
 MONITOR switch: TAPE  
 LINE IN control: mechanical mid  
 PB LEVEL control: mechanical mid

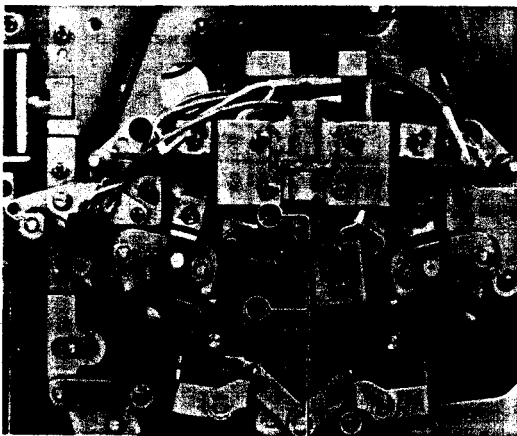
### Procedure:

Mode: record and simultaneous playback



Turn the height and zenith adjustment screws for the highest VTVM reading.

### Adjustment Location:



record head height and zenith adjustment screws

## 11. Record Head Azimuth and Phase Adjustments

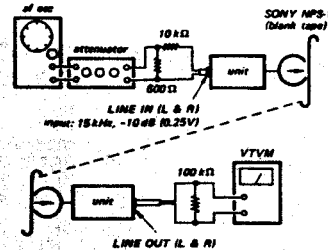
### Settings:

REEL SIZE switch: 7  
 TAPE SPEED switch: 19 cm, 7½  
 BIAS switch: LOW  
 TAPE SELECT (EQ) switch: NORMAL  
 MONITOR switch: TAPE  
 LINE IN control: mechanical mid  
 PB LEVEL control: mechanical mid

### Procedure:

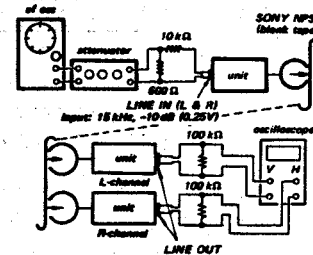
When an oscilloscope is available, employ Procedure 2. When a simplified test is made, follow Procedure 1.

#### 1. Mode: record and simultaneous playback



Turn the adjustment screw for the highest VTVM reading. If the highest peaks for L and R do not coincide, place the adjustment screw to the mechanical mid of the two positions for the peaks.

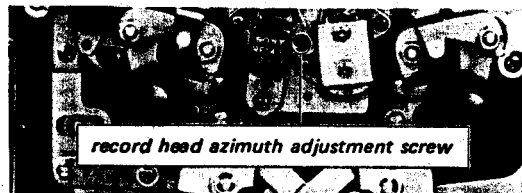
#### 2. Mode: record and simultaneous playback



Adjust	On the oscilloscope			
azimuth adjustment screw				
	good		wrong	

Note: Difference between the highest levels of L and R and the finally adjusted level should be within 1 dB.

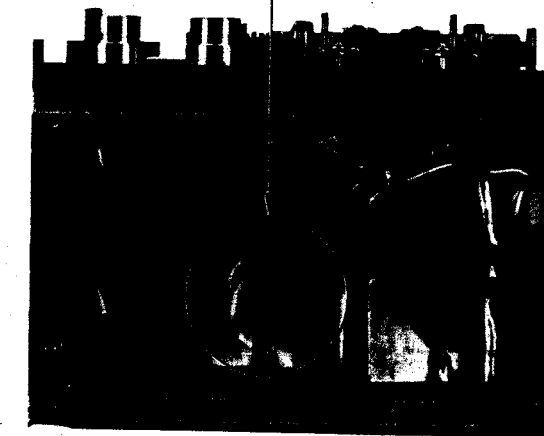
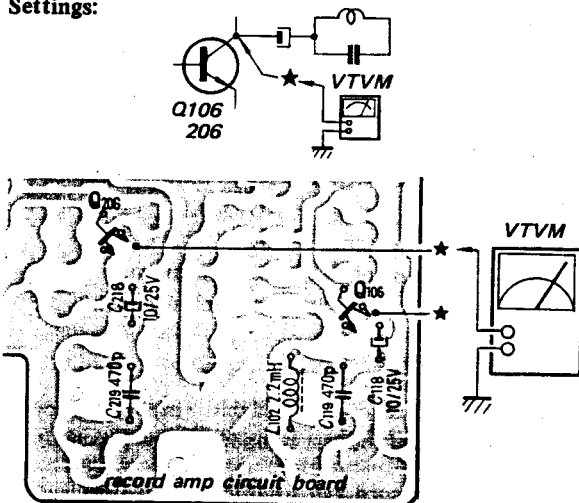
### Adjustment Location:



record head azimuth adjustment screw

## 12. Bias Trap Adjustment

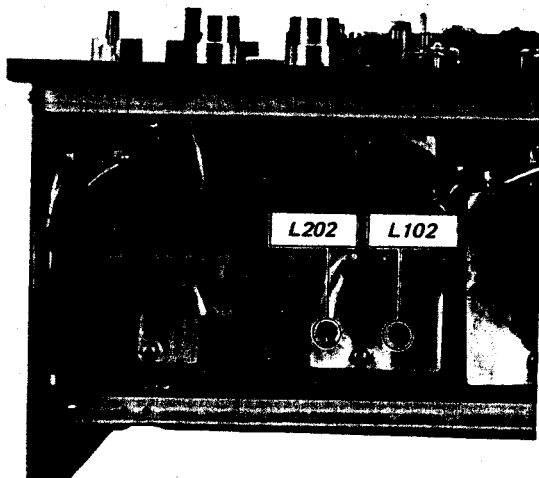
Settings:



Procedure:

In record mode turn L102 (L-channel) and L202 (R-channel) for the lowest VTVM reading ( $-40$  dB ( $7.7$  mV) or less).

Adjustment Location:



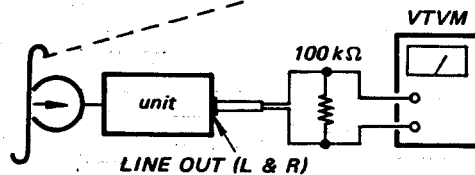
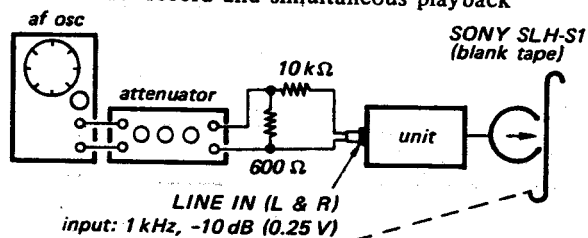
## 13. Record Bias Adjustment

Settings:

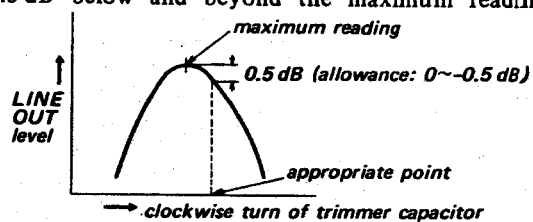
REEL SIZE switch: 7  
TAPE SPEED switch: 19 cm  $7\frac{1}{2}$   
BIAS (TAPE SELECT)  
switch: LOW  
EQ (TAPE SELECT)  
switch: SPECIAL  
MONITOR switch: TAPE  
LINE IN control: mechanical mid  
PB LEVEL control: mechanical mid

Procedure:

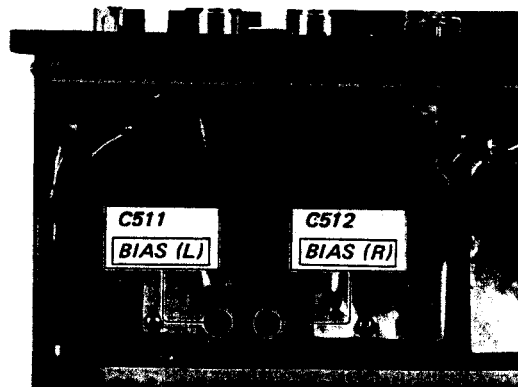
Mode: record and simultaneous playback



As trimmer capacitor C511 (L-channel) or C512 (R-channel) is slowly turned clockwise, VTVM reading will go up to a maximum and then start falling again. Adjust the capacitor until VTVM reads 0.5 dB below and beyond the maximum reading.



Adjustment Location:



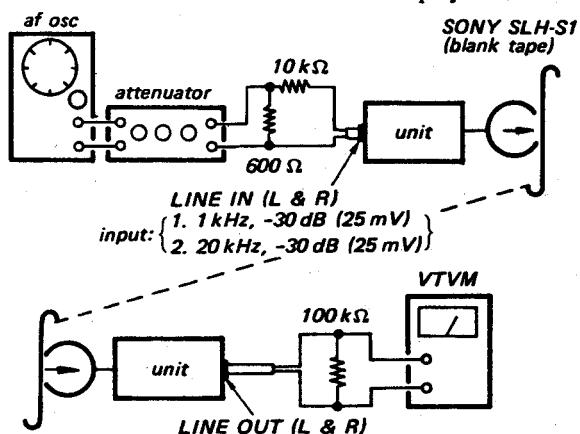
#### 14. Overall Frequency Response (SPECIAL RECORD EQ) Adjustment

##### Settings:

REEL SIZE switch: 7  
 TAPE SPEED switch: 19 cm 7½  
 BIAS (TAPE SELECT)  
   switch: LOW  
 EQ (TAPE SELECT)  
   switch: SPECIAL  
 MONITOR switch: TAPE  
 LINE IN control: mechanical mid  
 PB LEVEL control: mechanical mid

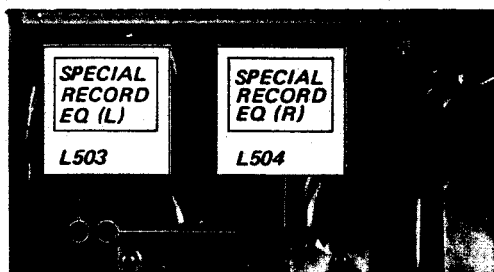
##### Procedure:

Mode: record and simultaneous playback



	Adjust	Remarks
1 kHz	L503 (L channel) and L504 (R channel)	Same LINE OUT level at both fre- quencies.
20 kHz		

##### Adjustment Location:



Specifications for your reference in case of a more detailed test:

1 kHz	0 dB (standard)
40 Hz	0 ± 3 dB
80 Hz	0 ± 3 dB
5 kHz	0 ± 3 dB
10 kHz	0 ± 3 dB
15 kHz	0 ± 3 dB
20 kHz	0 ± 1 dB

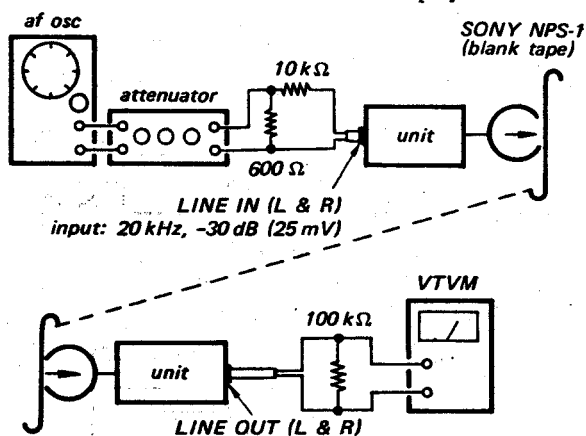
#### 15. Dummy Coil Adjustment

##### Settings:

REEL SIZE switch: 7  
 TAPE SPEED switch: 19 cm, 7½  
 BIAS (TAPE SELECT)  
   switch: LOW  
 EQ (TAPE SELECT)  
   switch: NORMAL  
 MONITOR switch: TAPE  
 LINE IN control: mechanical mid  
 PB LEVEL control: mechanical mid

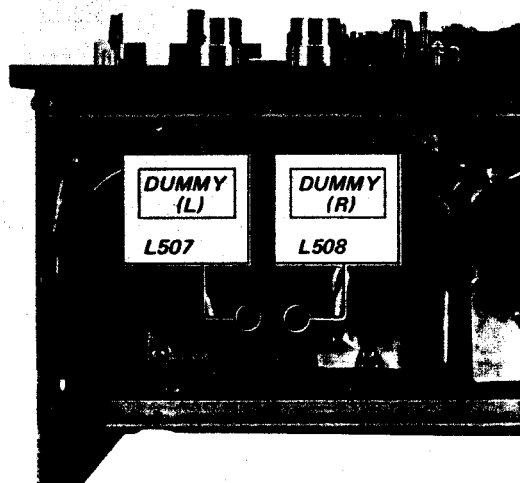
##### Procedure:

Mode: record and simultaneous playback



Step	Mode	Adjust	Remarks
1	stereo record and simultaneous playback	—	same VTVM reading
2	L channel record and simultaneous playback	L508	
3	R channel record and simultaneous playback	L507	

##### Adjustment Location:



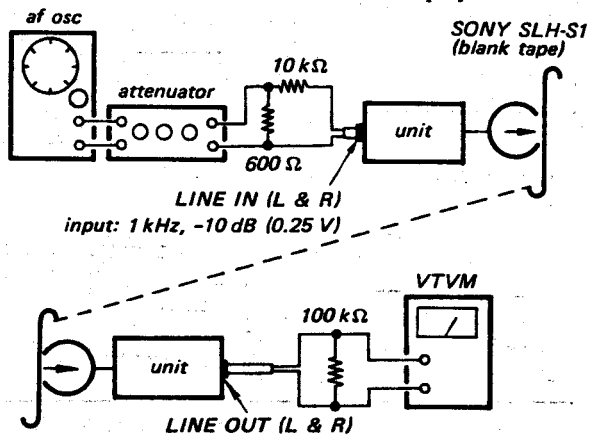
## 16. Record Level Adjustment

### Settings:

REEL SIZE switch: 7  
 TAPE SPEED switch: 19 cm, 7 1/2  
 BIAS (TAPE SELECT)  
     switch: LOW  
 EQ (TAPE SELECT)  
     switch: SPECIAL  
 MONITOR switch: TAPE  
 LINE IN control: mechanical mid  
 PB LEVEL control: mechanical mid

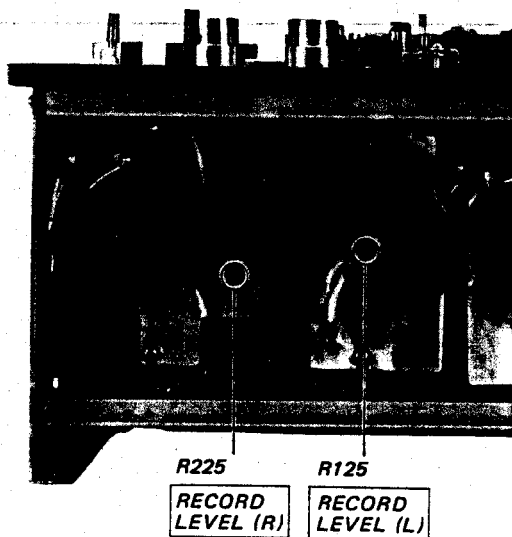
### Procedure:

Mode: record and simultaneous playback



Adjust	VTVM reading
R125 (L channel)	0 dB (0.775 V)
R225 (R channel)	

### Adjustment Location:

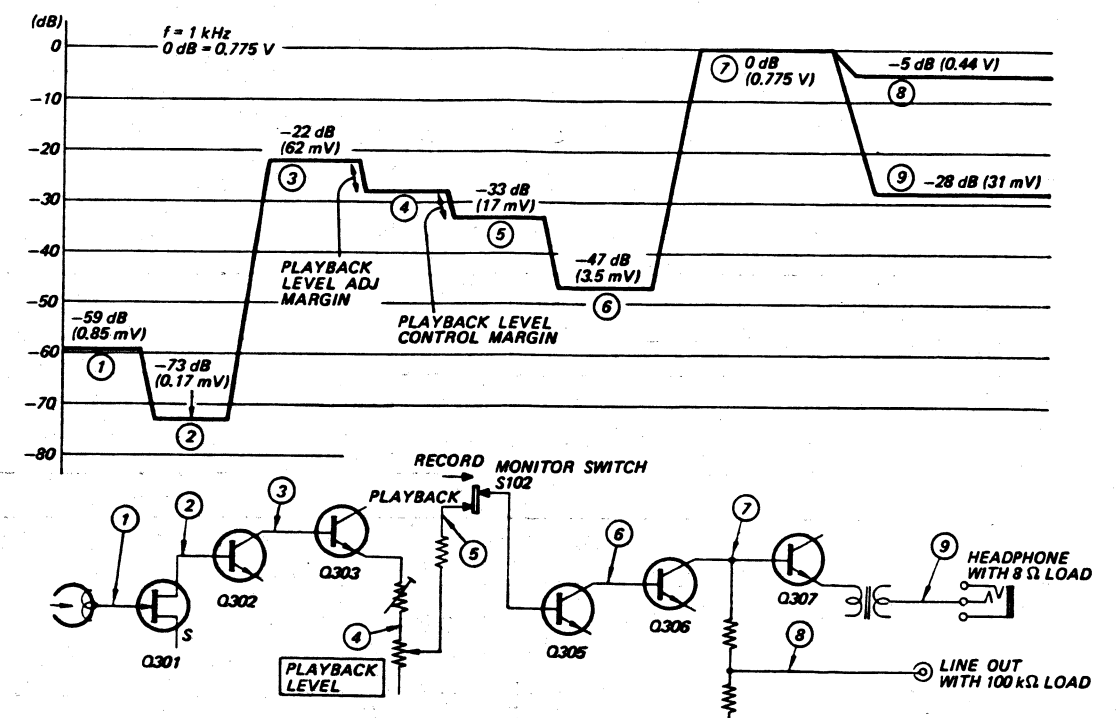


# SECTION 3 DIAGRAMS

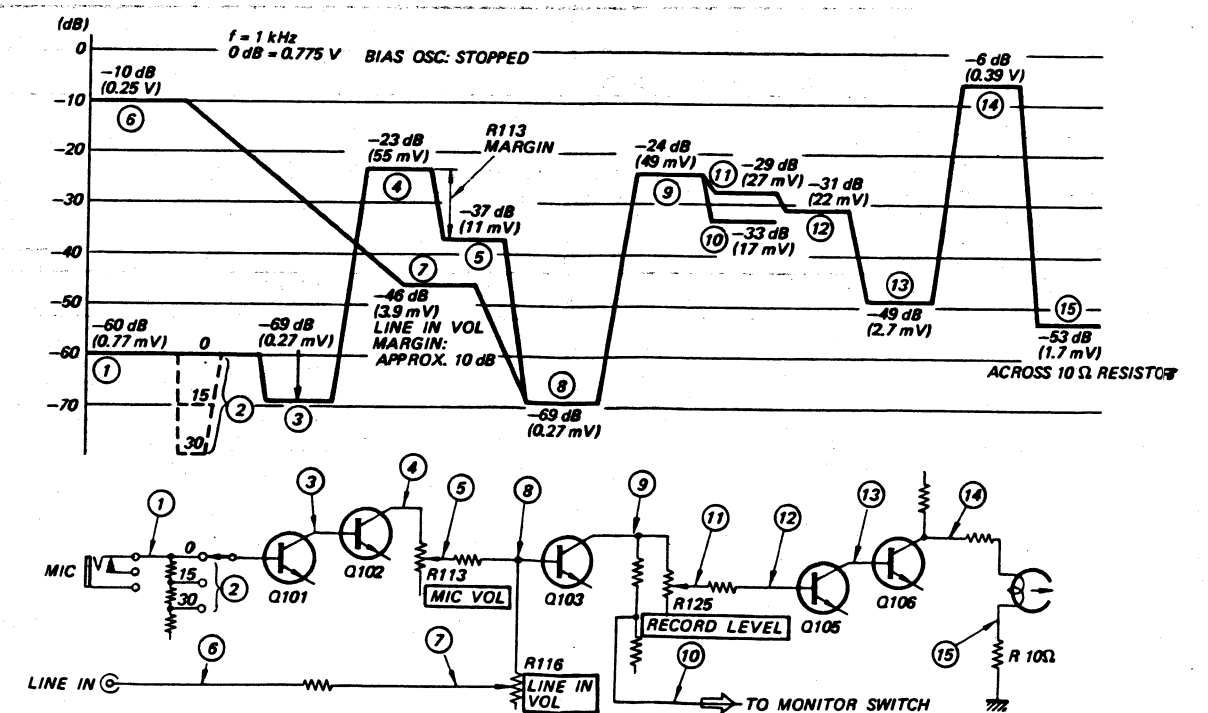
## MEMO

### 3-1. LEVEL DIAGRAMS

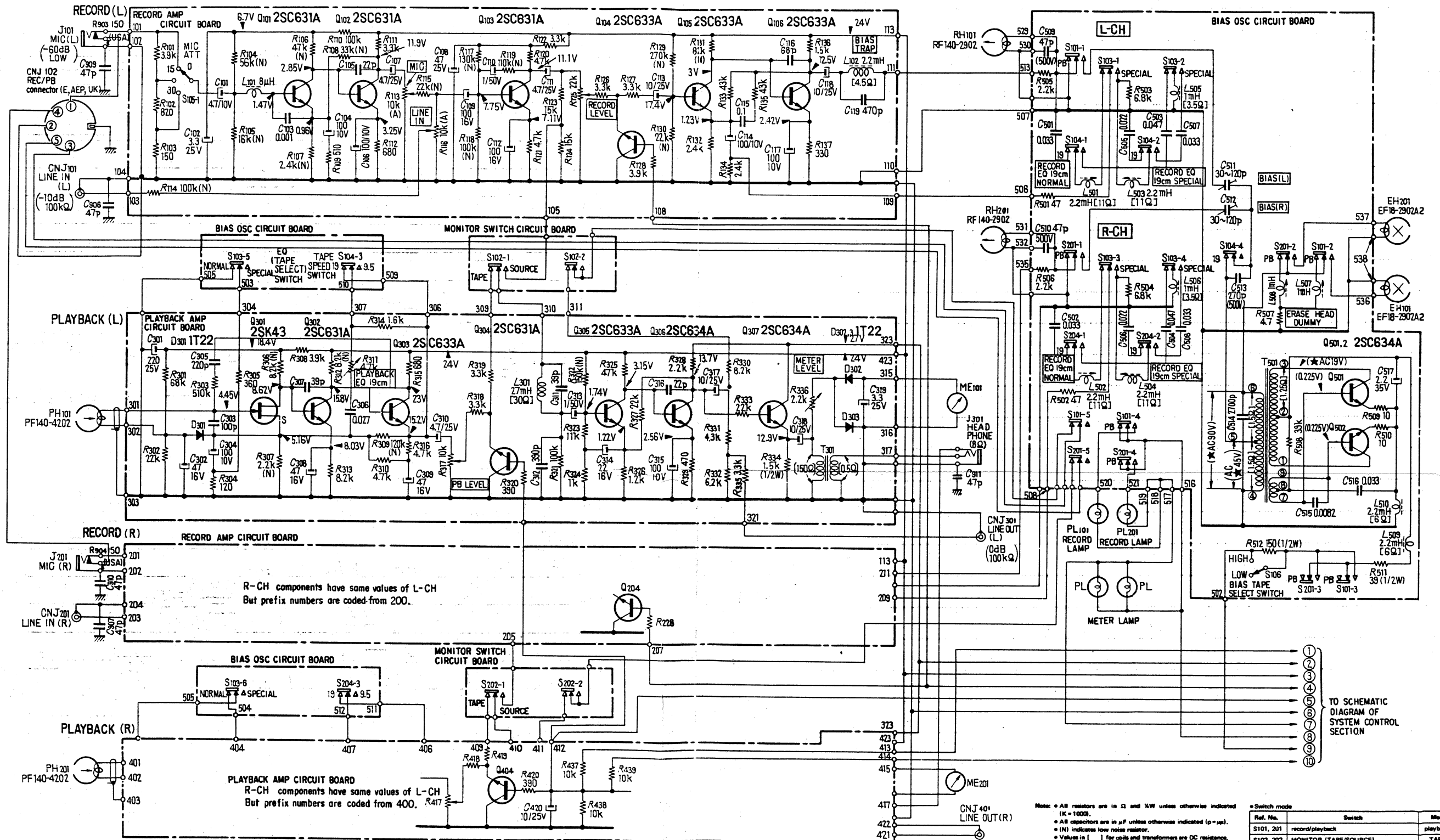
#### Playback Mode



#### Record Mode

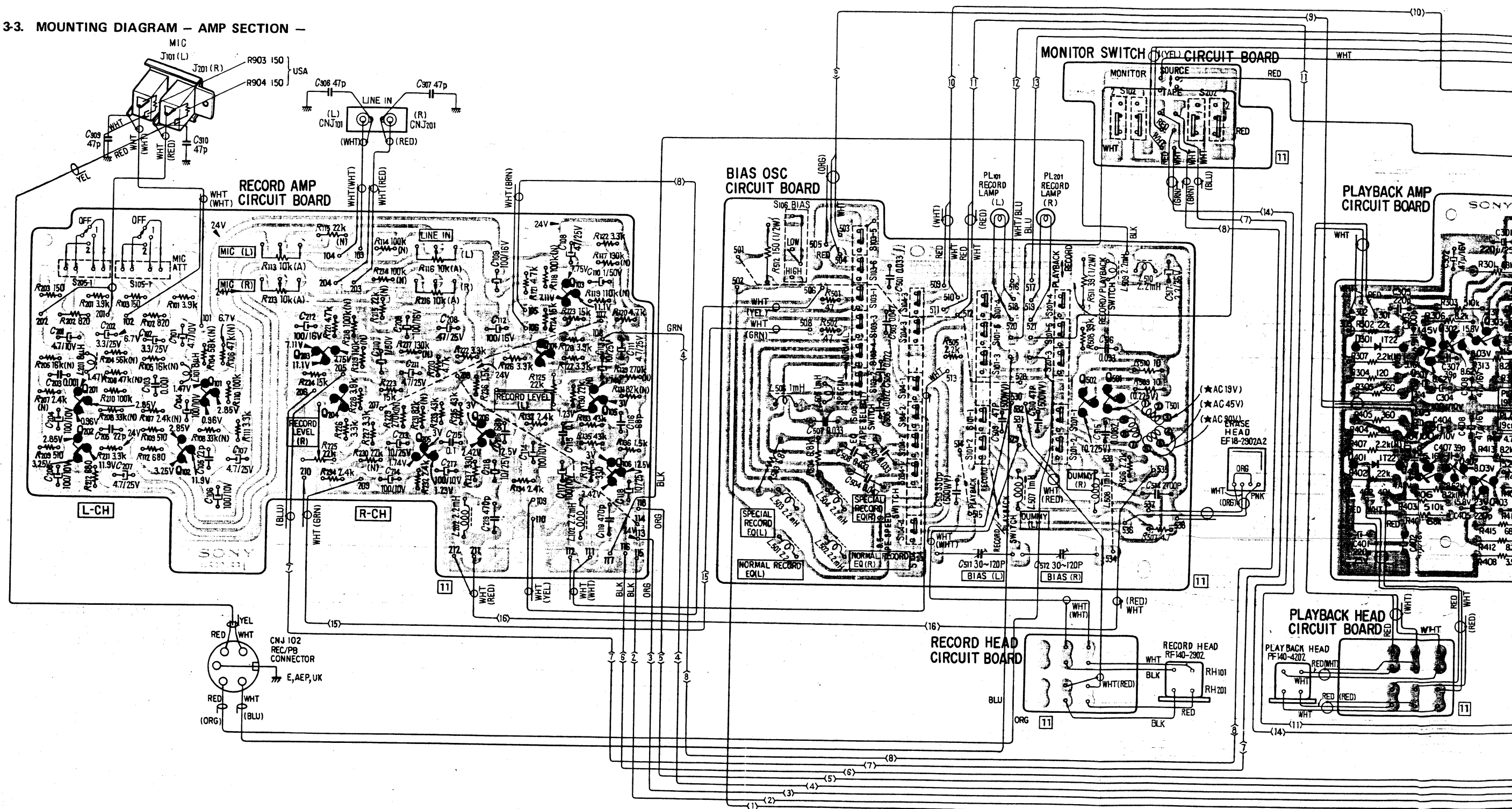


### 3-2. SCHEMATIC DIAGRAM – AMP SECTION –



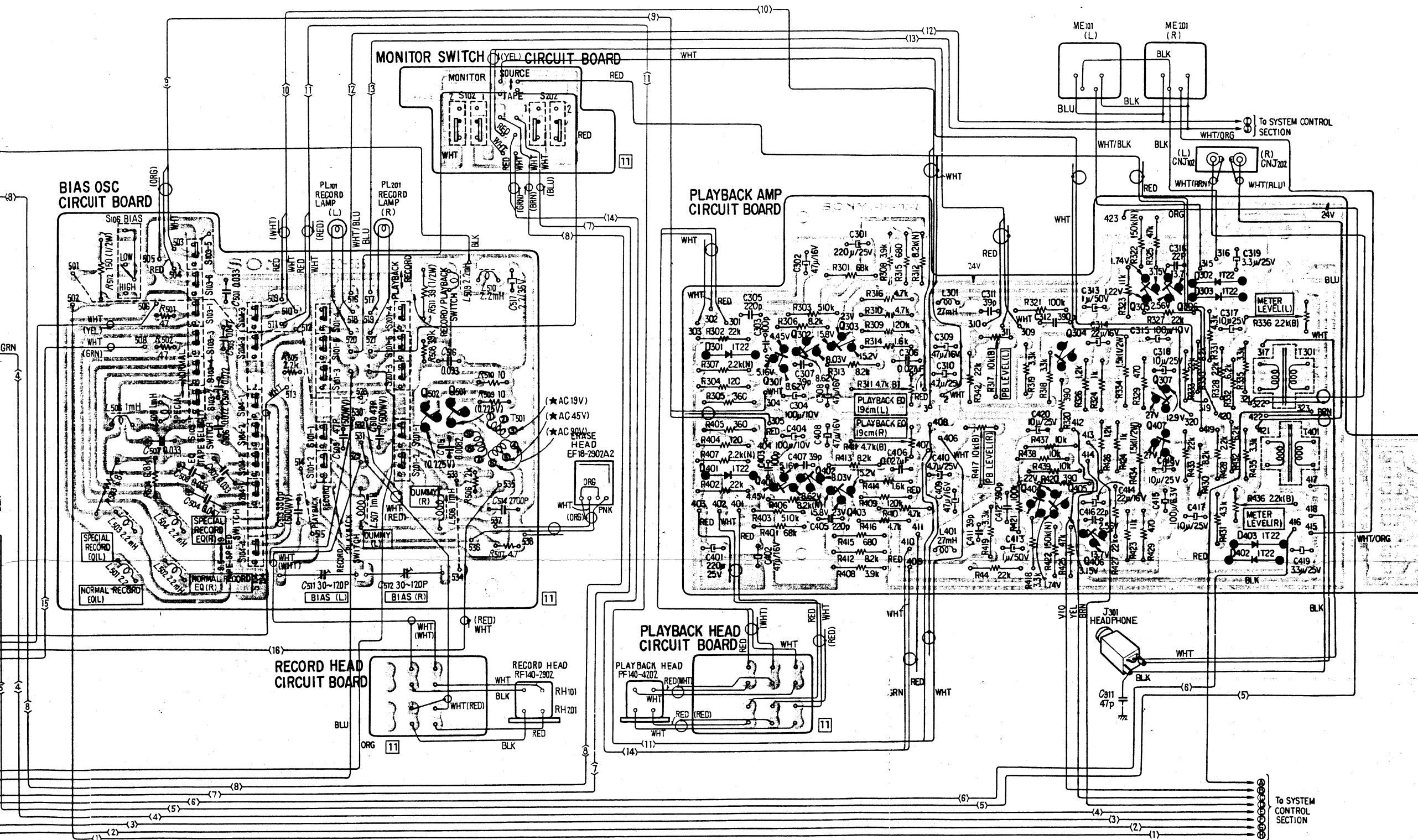
Ref. No.	Switch	Mode
S101, 201	record/playback	playback
S102, 202	MONITOR (TAPE/SOURCE)	TAPE
S103	EQ (TAPE SELECT) (NORMAL/SPECIAL)	NORMAL
S104, 204	TAPE SPEED (19 cm, 7 1/2 cm, 3 1/2 cm)	19 cm, 7 1/2 cm
S105, 205	MIC ATT (0/15/30 dB)	0
S106	BIAS (TAPE SELECT) (LOW/HIGH)	LOW

3.3. MOUNTING DIAGRAM - AMP SECTION -

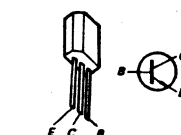


Q	Q201 Q202	Q101 Q102	Q203 Q204	Q205	Q206	Q104 Q103	Q105 Q106	Q502 Q501	Q311 Q302 Q303
D									Q411 Q402 Q403
ADJ			R225			R125		L503 L501	R311 R411

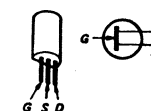




- Q101, 102, 103  
Q201, 202, 203  
Q302, 304,  
Q402, 404
- Q104, 105, 106  
Q204, 205, 206  
Q303, 305  
Q403, 405
- Q306, 307  
Q406, 407  
Q501, 502



2SK43: Q301, 401



1T22: D301, 302, 303  
D401, 402, 403



L503 L504  
L501 L502

C511 L507 C512 L508

Q301 Q302 Q303  
Q401 Q402 Q403

Q304 Q305 Q306  
Q404 Q405 Q406  
Q307 Q407

D301  
D401

D302  
D303  
D403  
D402

R336  
R436

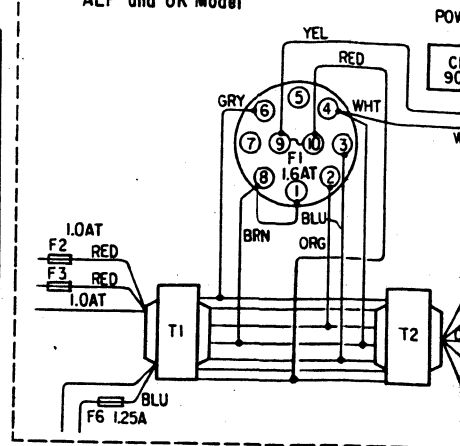
R311  
R411

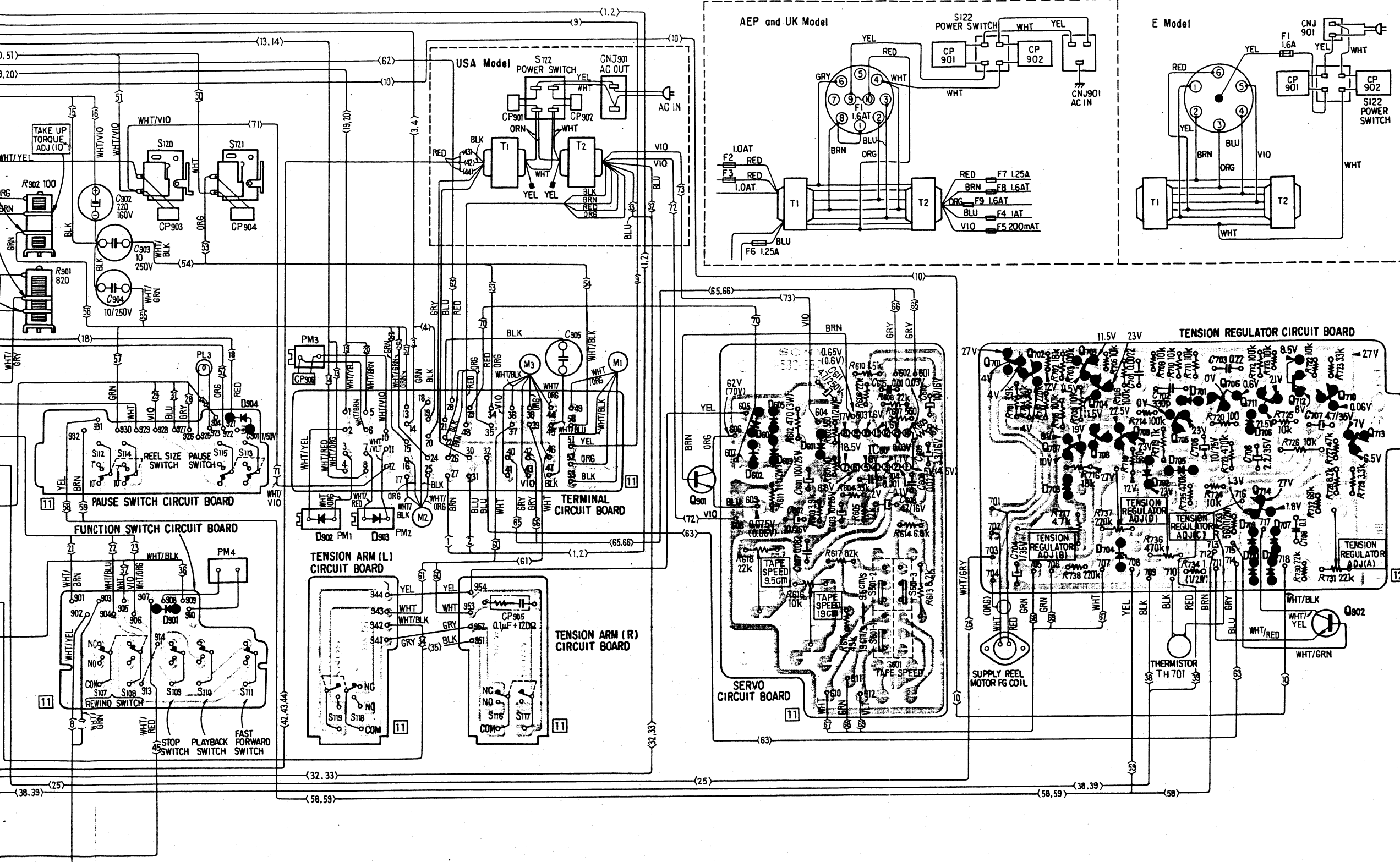
R317  
R417



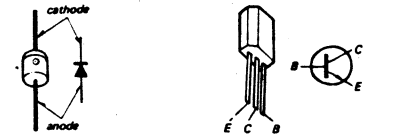
**TC-755 TC-**

### AEP and UK Model

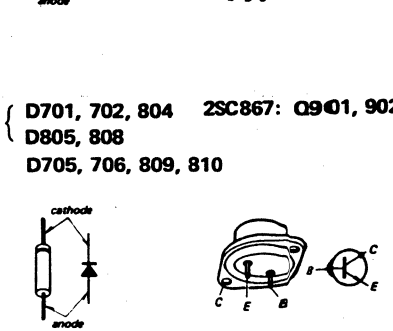




- 10D2:
- D601, 602, 603
  - D604, 605, 707
  - D708, 709, 710
  - D801, 802, 806
  - D807, 811, 812
  - D813, 814, 815
  - D816, 817, 901
  - D902, 903, 904
- 2SC634A:
- Q701, 702, 703
  - Q704, 705, 706
  - Q707, 708, 709
  - Q710, 711, 712
  - Q713, 801, 802
  - Q803, 804, 805
  - Q806, 807, 808
  - Q809, 810, 811

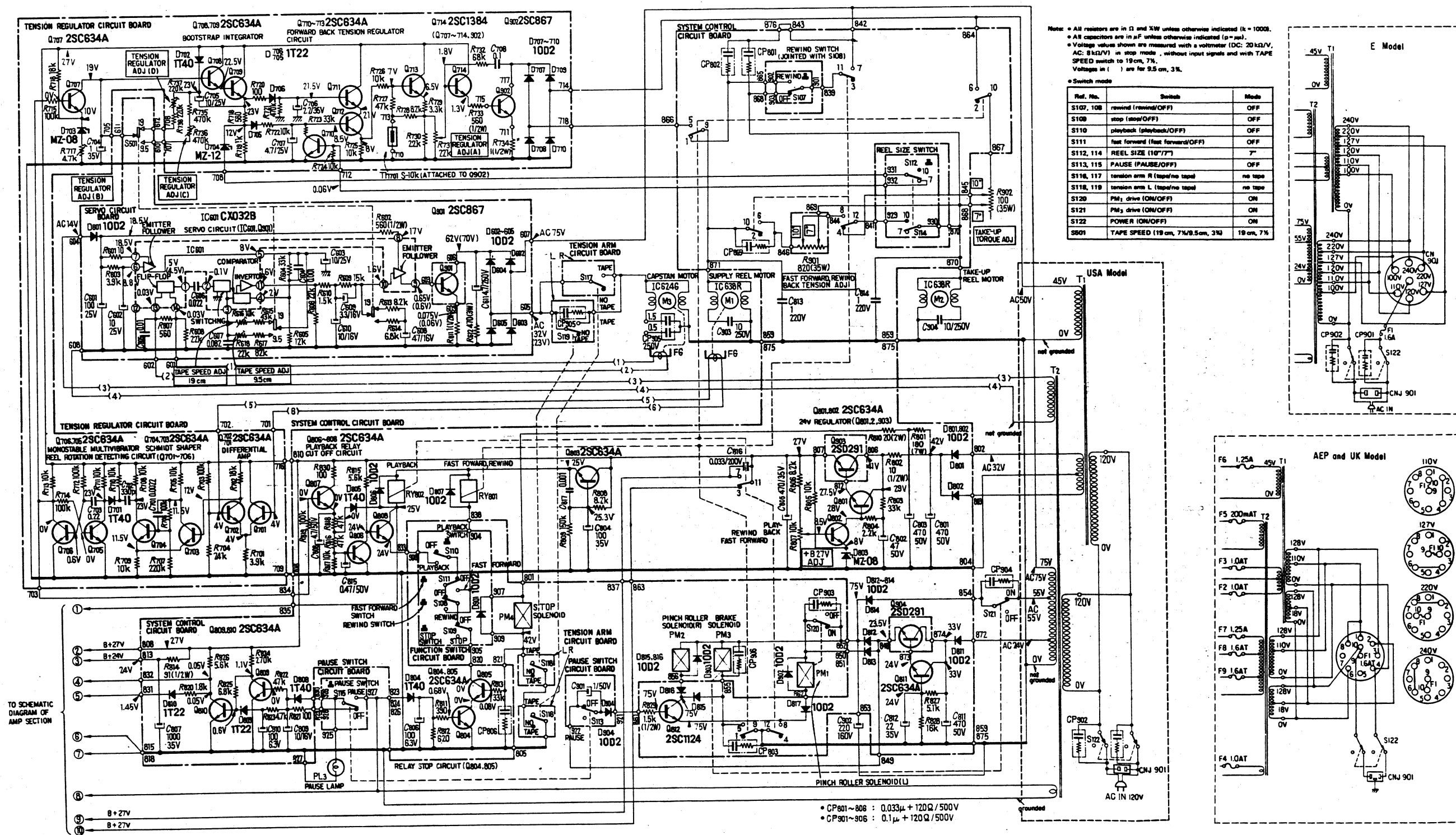


- MZ-08: D703, 803
- MZ-12: D704
- 2SC1384: Q714
- 2SC1124: Q812
- 1T40: D701, 702, 804, D805, 808
- 1T22: D705, 706, 809, 810
- 2SC867: Q901, 902
- 2SD291: Q903, 904



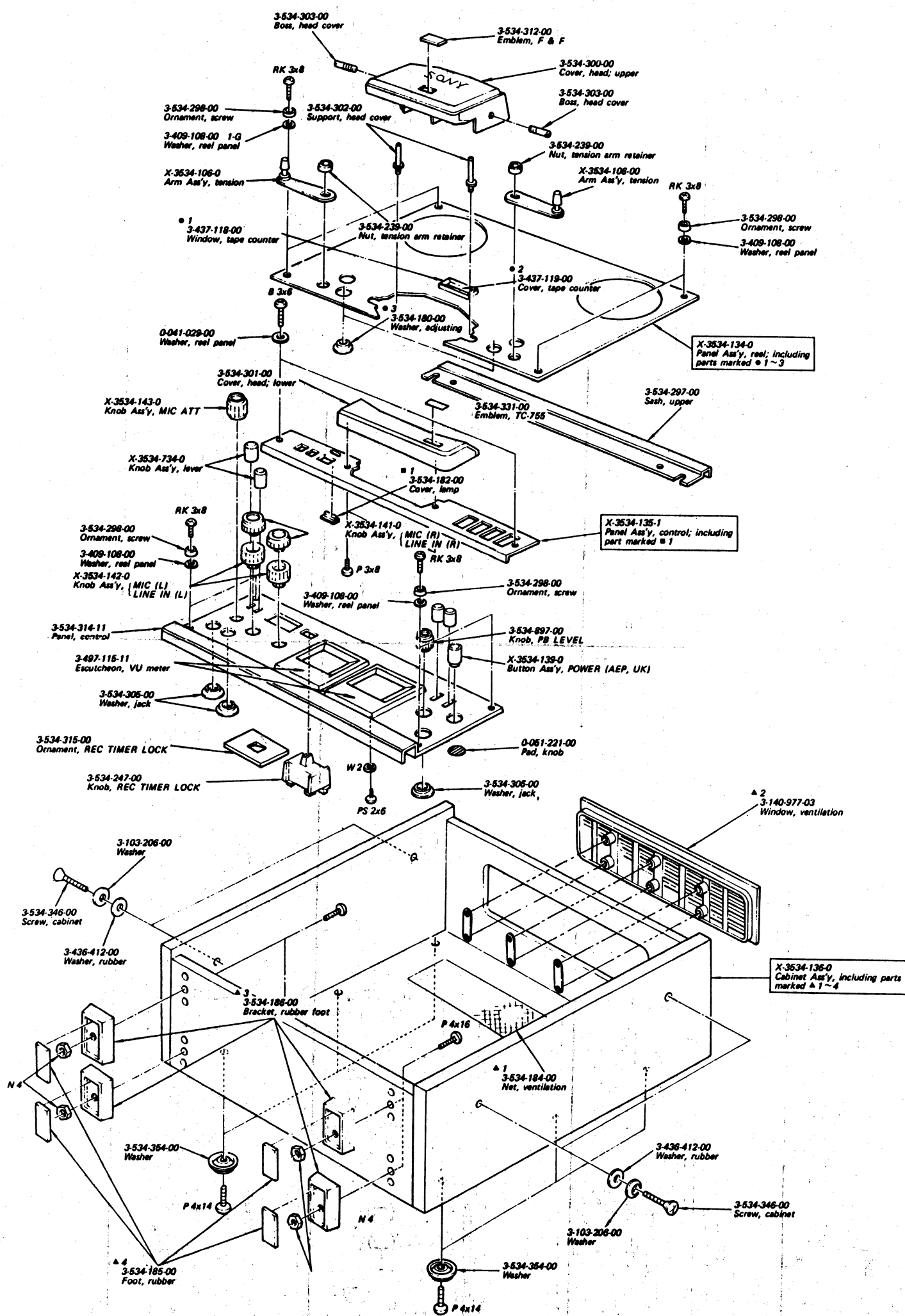
Q901		IC601		Q701 Q702	Q703	Q704	Q706 Q711	Q712	Q710	Q713
D901		D904		D604 D605		D601	D701		D706	
D902		Q903		D703		D702	D705		D709	D707
D602		D603		D704		D710		D708		
R902		R901		R618		R616	R717		R737	R736
									R731	

3-5. SCHEMATIC DIAGRAM – SYSTEM CONTROL SECTION –



SECTION 4  
EXPLODED VIEWS AND PACKING

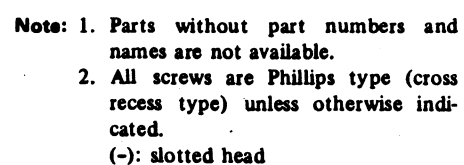
TC-755 TC-755



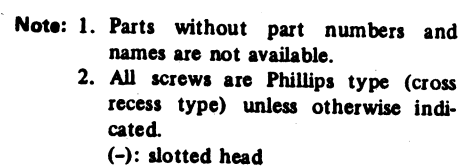
Note: 1. Parts without part numbers and names are not available.

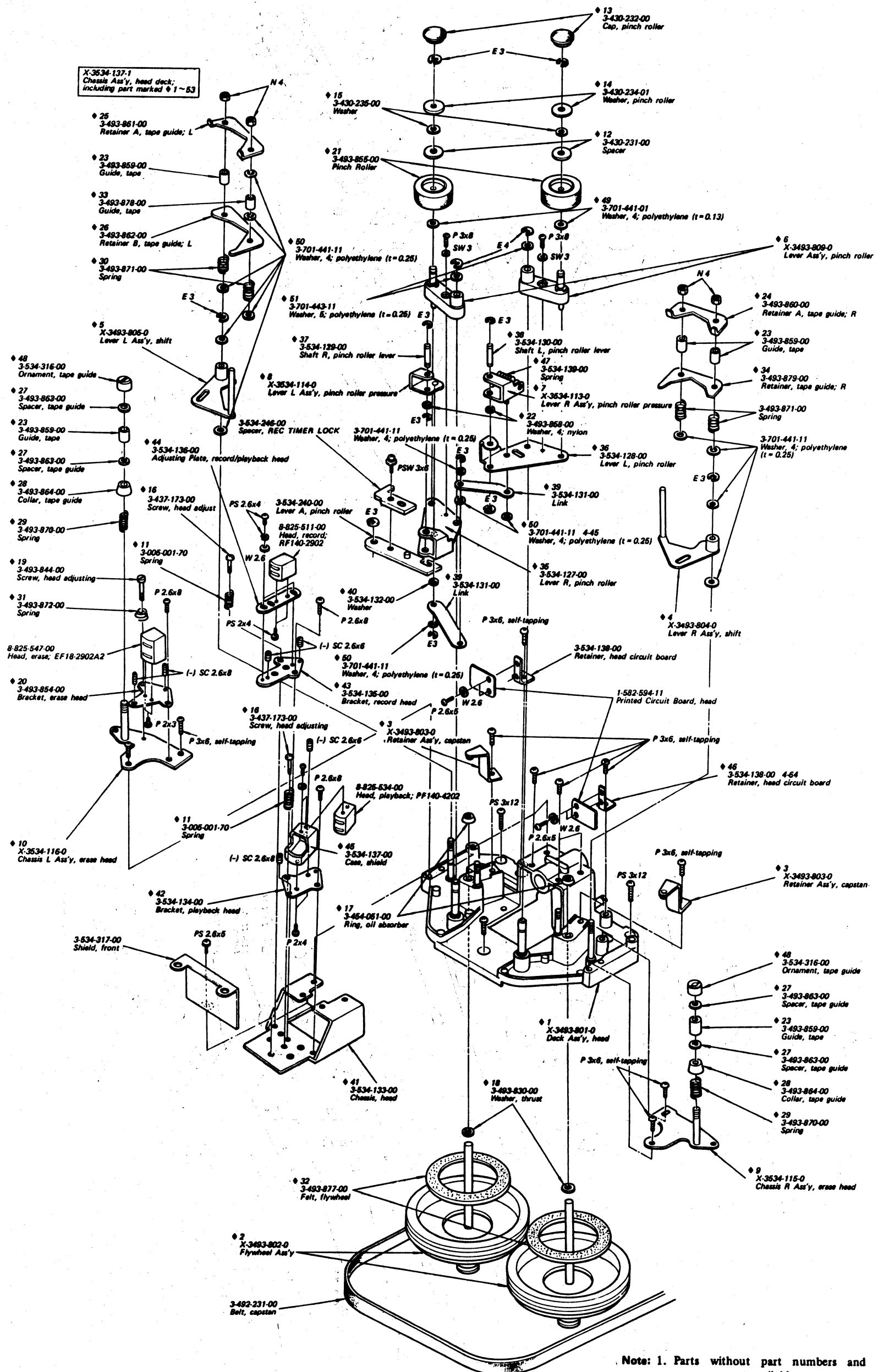
2. All screws are Phillips type (cross recess type) unless otherwise indicated.

(-): slotted head



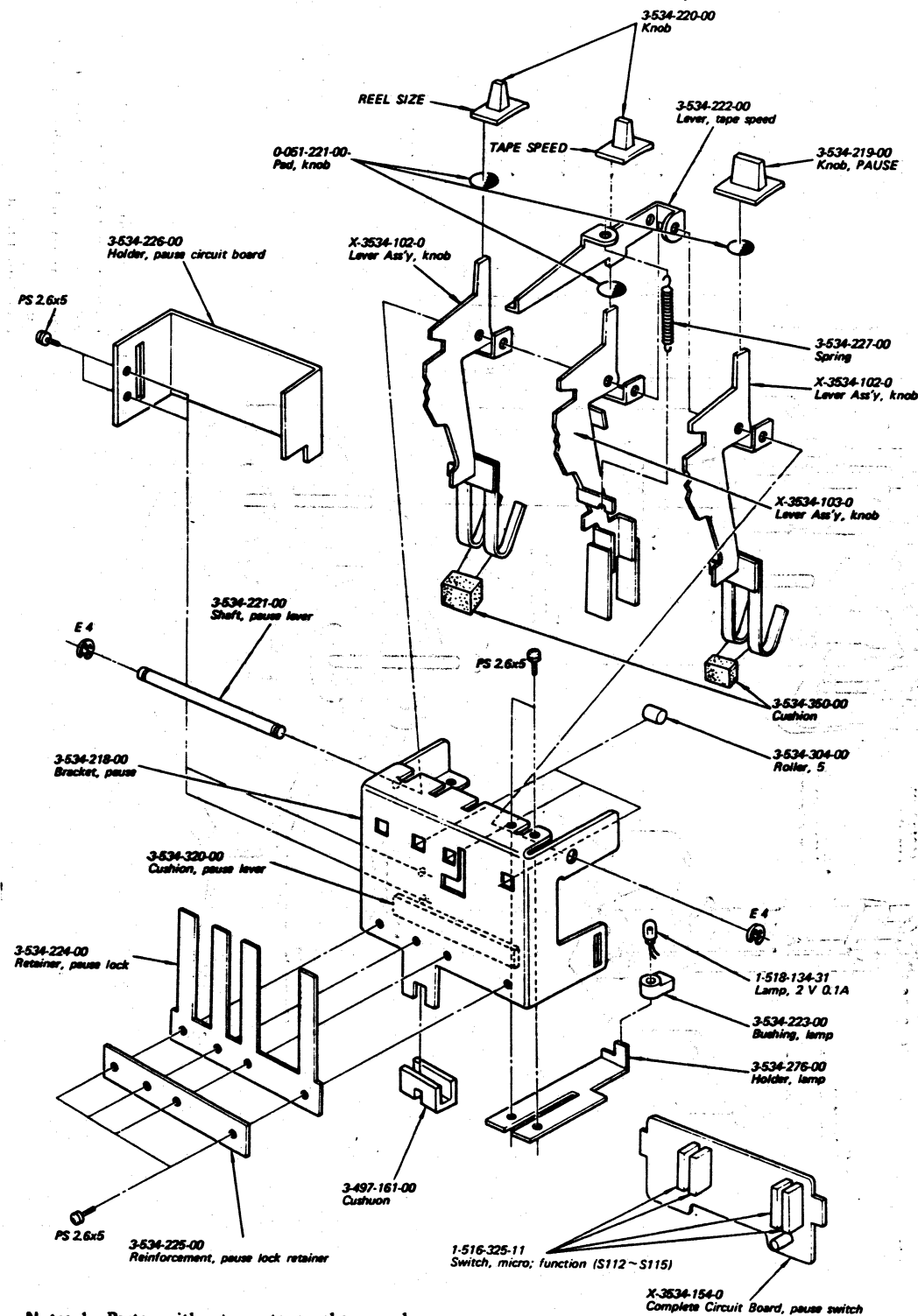






- Note: 1. Parts without part numbers and names are not available.  
 2. All screws are Phillips type (cross recess type) unless otherwise indicated.  
 (-): slotted head

#### 4-5. EXPLODED VIEW (5)

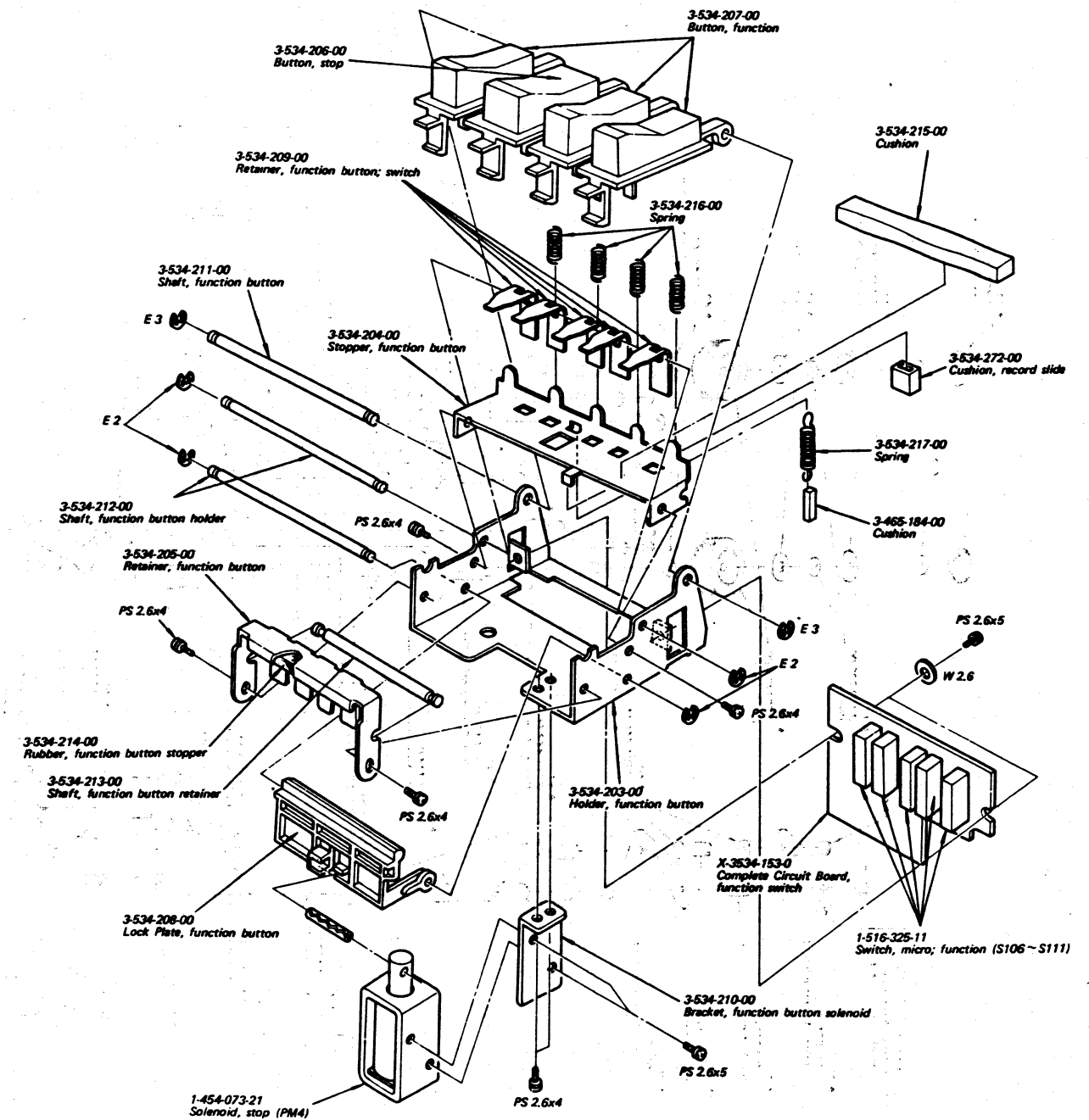


**Note: 1. Parts without part numbers and names are not available.**

2. All screws are Phillips type (cross recess type) unless otherwise indicated.

**(-): slotted head**

#### 4-6. EXPLODED VIEW (6)

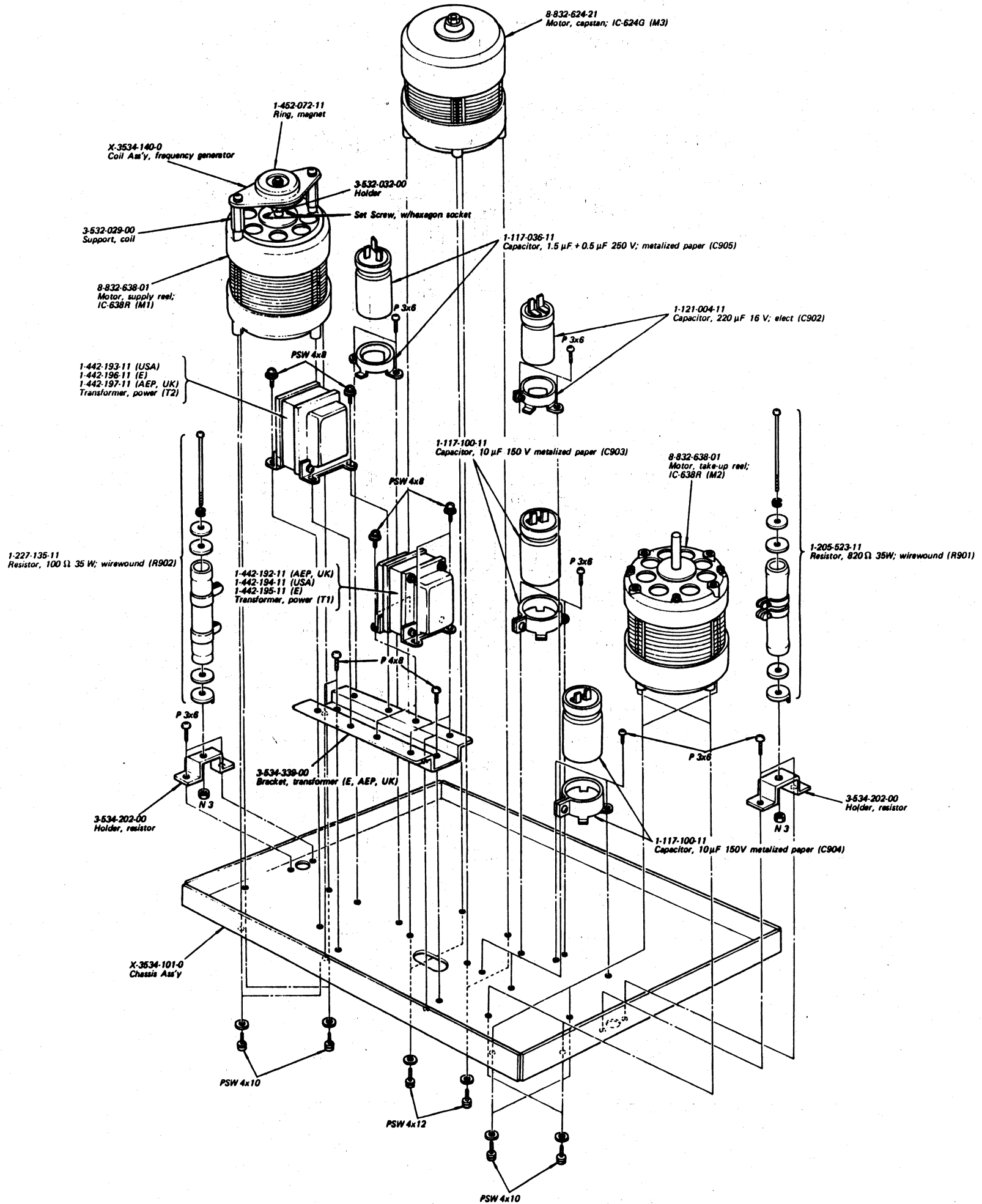


**Note: 1. Parts without part numbers and names are not available.**

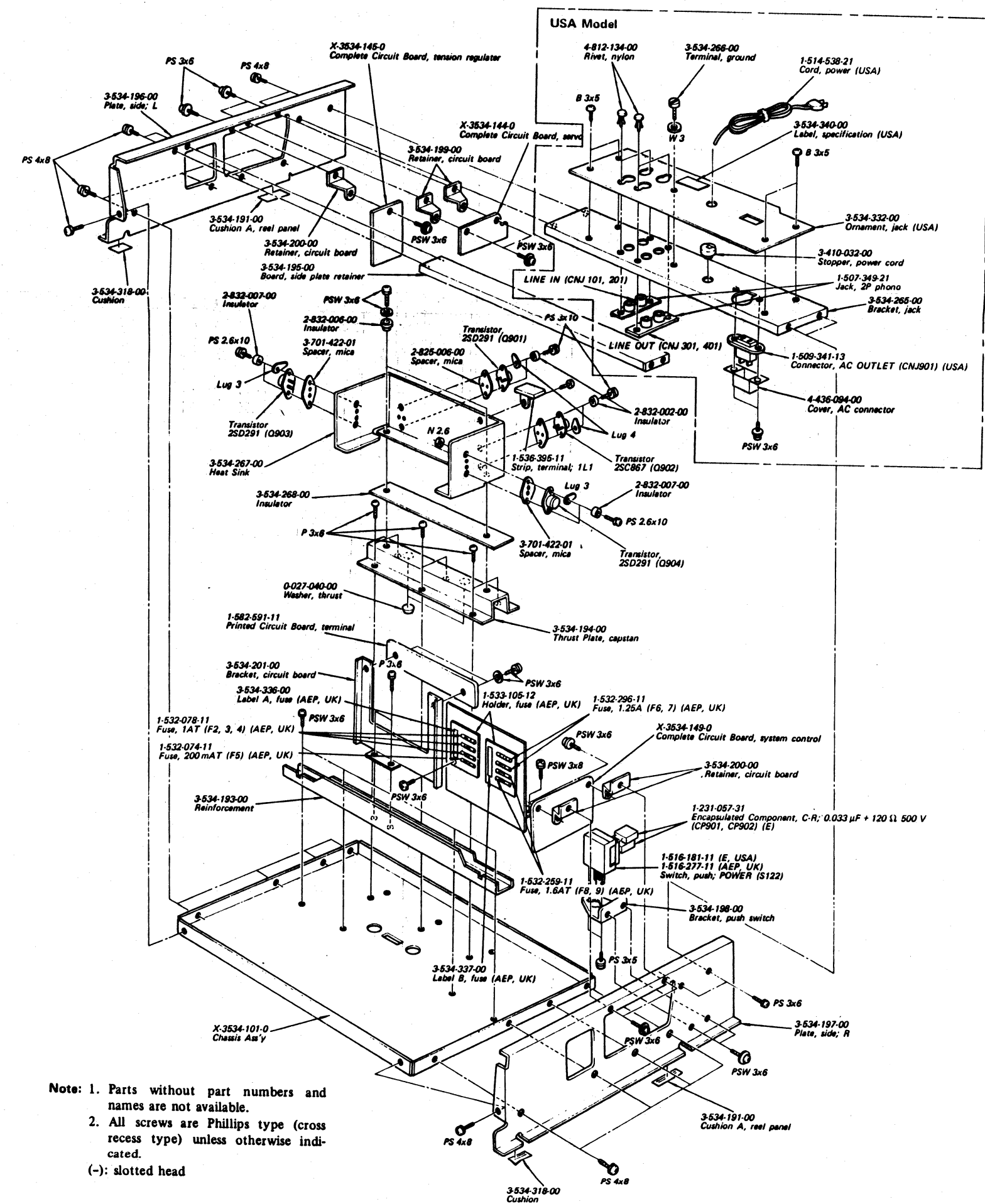
2. All screws are Phillips type (cross recess type) unless otherwise indicated.

(-): slotted head

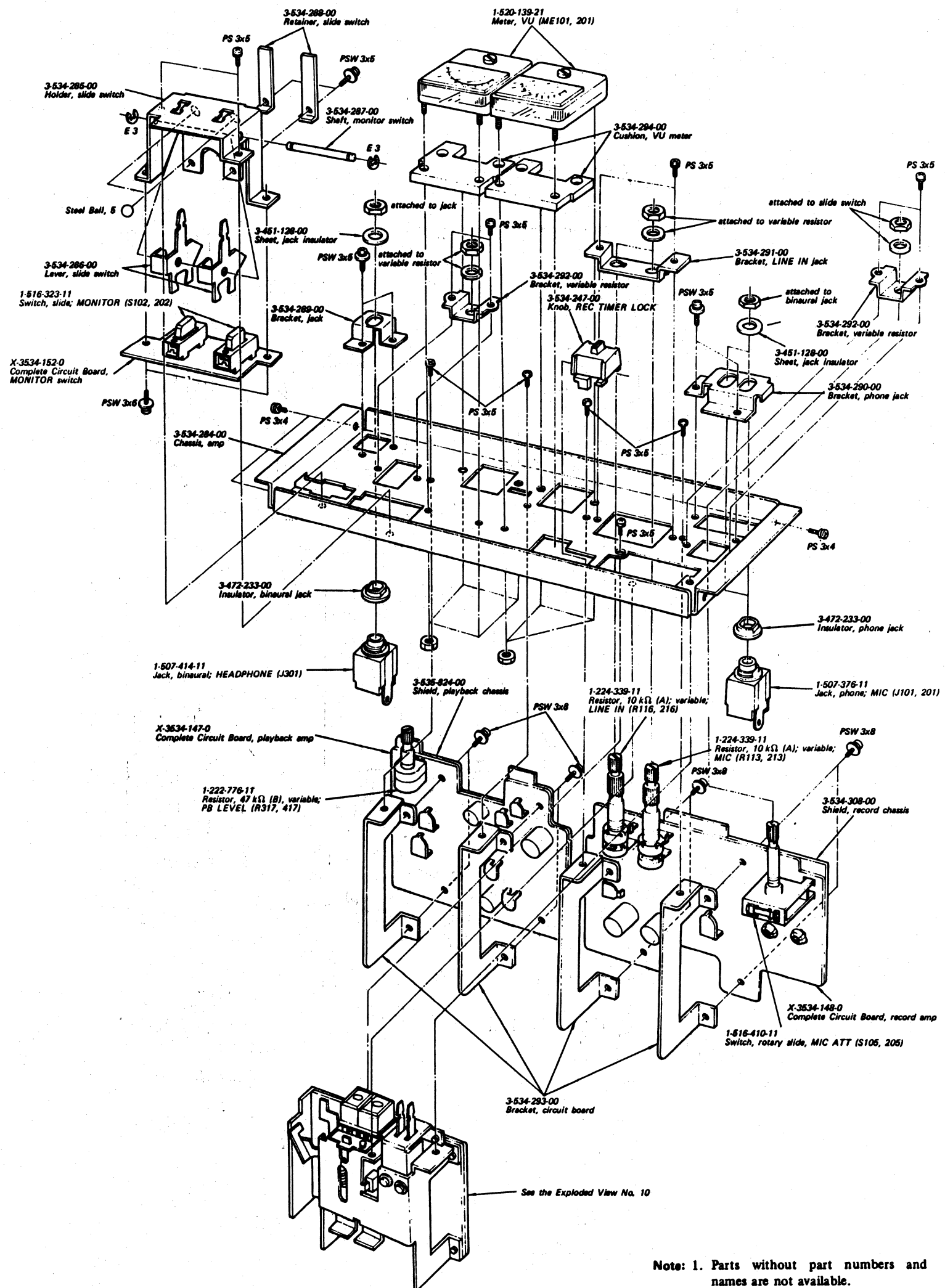




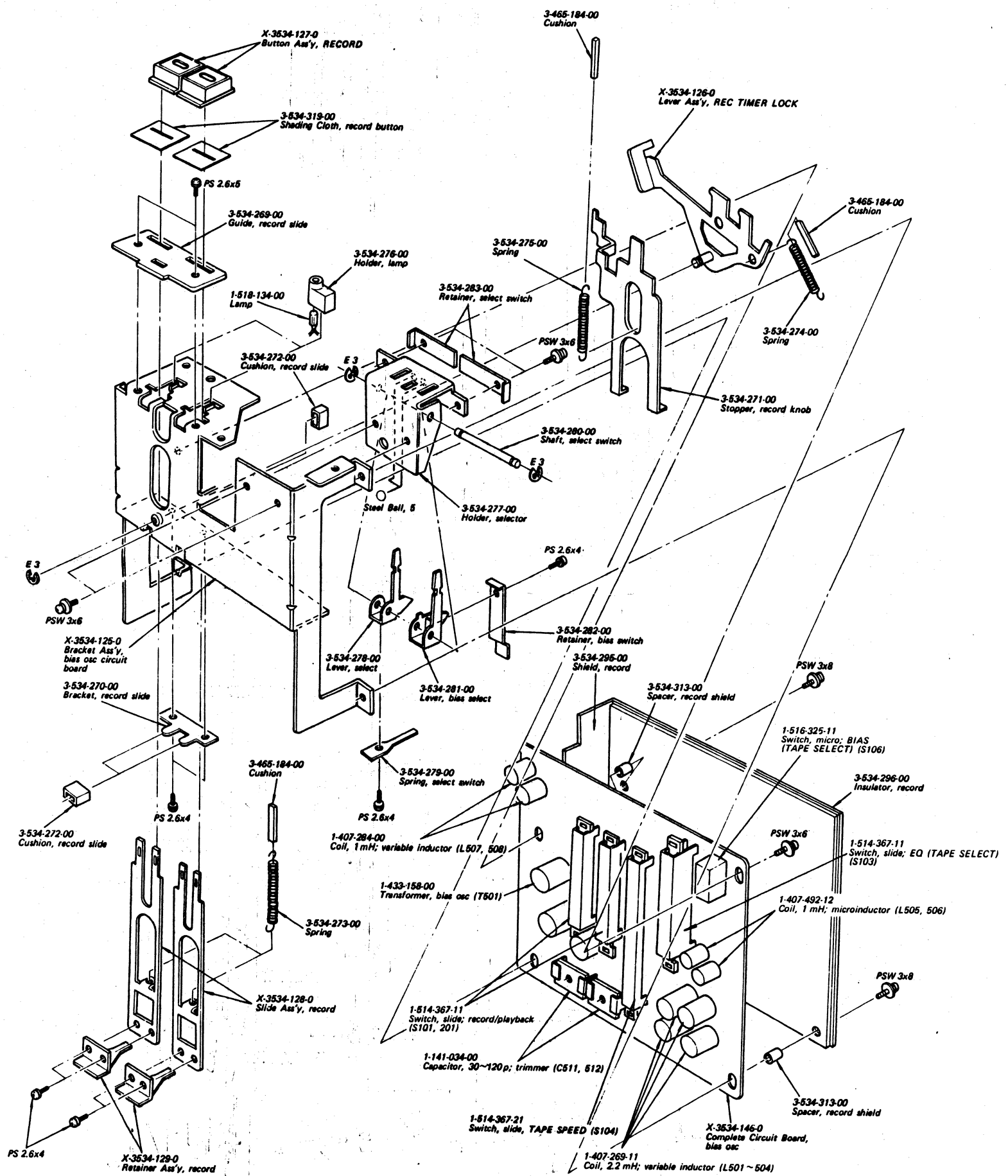
- Note:**
1. Parts without part numbers and names are not available.
  2. All screws are Phillips type (cross recess type) unless otherwise indicated.  
(-): slotted head



- 49 -

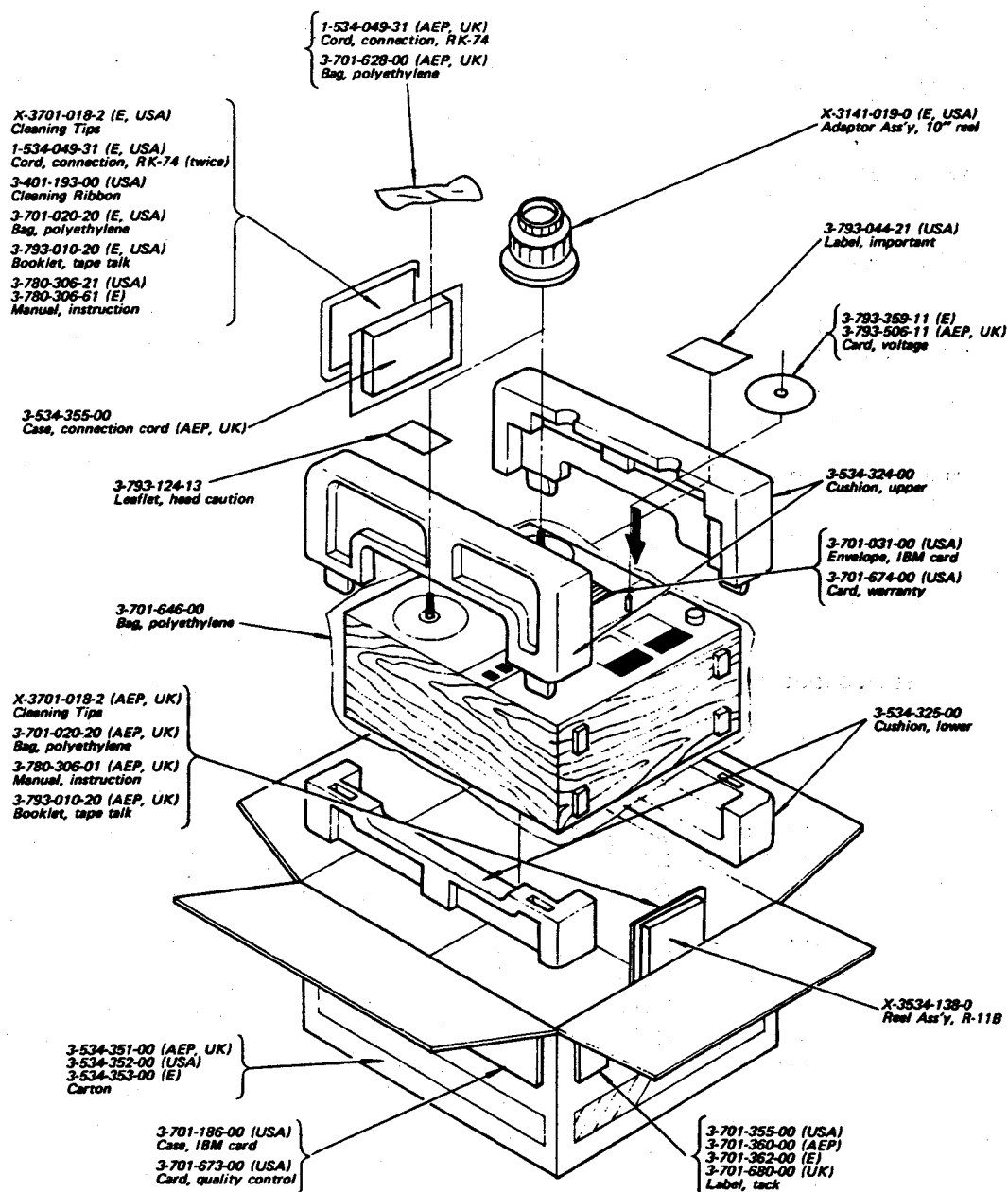


- Note: 1. Parts without part numbers and names are not available.
2. All screws are Phillips type (cross recess type) unless otherwise indicated.
- (-): slotted head



- Note: 1. Parts without part numbers and names are not available.  
 2. All screws are Phillips type (cross recess type) unless otherwise indicated.  
 (-): slotted head

## 4-11. PACKING



Parts without part numbers and names are not available.

## SECTION 5 ELECTRICAL PARTS LIST

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
<b>COMPLETE CIRCUIT BOARDS</b>					
	X-3534-150-0	Tension Arm (R)	Q707	Transistor	2SC634A
	X-3534-151-0	Tension Arm (L)	Q708	Transistor	2SC634A
	X-3534-152-0	MONITOR Switch	Q709	Transistor	2SC634A
	X-3534-144-0	Servo	Q710	Transistor	2SC634A
	X-3534-153-0	Function Switch	Q711	Transistor	2SC634A
	X-3534-154-0	Pause Switch	Q712	Transistor	2SC634A
	X-3534-145-0	Tension Regulator	Q713	Transistor	2SC634A
	X-3534-146-0	Bias Osc	Q714	Transistor	2SC1384
	X-3534-147-0	Playback Amp	Q801	Transistor	2SC634A
	X-3534-148-0	Record Amp	Q802	Transistor	2SC634A
	X-3534-149-0	System Control	Q803	Transistor	2SC634A
			Q804	Transistor	2SC634A
			Q805	Transistor	2SC634A
			Q806	Transistor	2SC634A
			Q807	Transistor	2SC634A
			Q808	Transistor	2SC634A
			Q809	Transistor	2SC634A
			Q810	Transistor	2SC634A
			Q811	Transistor	2SC634A
			Q812	Transistor	2SC1124
<b>PRINTED CIRCUIT BOARDS</b>					
	1-582-591-11	Terminal	Q901	Transistor	2SC867
	1-582-594-11	Head	Q902	Transistor	2SC867
			Q903	Transistor	2SD291
			Q904	Transistor	2SD291
<b>SEMICONDUCTORS</b>			IC601	Integrated Circuit CX-032B	
Q101,201	Transistor	2SC631A	D301,401	Diode	1T22
Q102,202	Transistor	2SC631A	D302,402	Diode	1T22
Q103,203	Transistor	2SC631A	D303,403	Diode	1T22
Q104,204	Transistor	2SC633A	D601	Diode	10D2
Q105,205	Transistor	2SC633A	D602	Diode	10D2
Q106,206	Transistor	2SC633A	D603	Diode	10D2
Q301,401	FET	2SK43	D604	Diode	10D2
Q302,402	Transistor	2SC631A	D605	Diode	10D2
Q303,403	Transistor	2SC633A	D701	Diode	1T40
Q304,404	Transistor	2SC631A	D702	Diode	1T40
Q305,405	Transistor	2SC633A	D703	Diode	MZ-08
Q306,406	Transistor	2SC634A	D704	Diode	MZ-12
Q307,407	Transistor	2SC634A	D705	Diode	1T22
Q501	Transistor	2SC634A	D706	Diode	1T22
Q502	Transistor	2SC634A	D707	Diode	10D2
Q701	Transistor	2SC634A	D708	Diode	10D2
Q702	Transistor	2SC634A	D709	Diode	10D2
Q703	Transistor	2SC634A	D710	Diode	10D2
Q704	Transistor	2SC634A			
Q705	Transistor	2SC634A			
Q706	Transistor	2SC634A			

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	
D801		Diode	10D2
D802		Diode	10D2
D803		Diode	MZ-08
D804		Diode	1T40
D805		Diode	1T40
D806		Diode	10D2
D807		Diode	10D2
D808		Diode	1T40
D809		Diode	1T22
D810		Diode	1T22
D811		Diode	10D2
D812		Diode	10D2
D813		Diode	10D2
D814		Diode	10D2
D815		Diode	10D2
D816		Diode	10D2
D817		Diode	10D2
D901		Diode	10D2
D902		Diode	10D2
D903		Diode	10D2
D904		Diode	10D2
Th701	1-800-204-11	Thermistor	S10K

## COILS

L101,201	1-407-519-11	8 $\mu$ H, inductor
L102,202	1-407-286-11	2.2 mH, variable inductor
L301, 401	1-407-593-11	27 mH, microinductor
L501	1-407-269-11	2.2 mH, variable inductor
L502	1-407-269-11	2.2 mH, variable inductor
L503	1-407-269-11	2.2 mH, variable inductor
L504	1-407-269-11	2.2 mH, variable inductor
L505	1-407-492-12	1 mH, microinductor
L506	1-407-492-12	1 mH, microinductor
L507	1-407-284-00	1 mH, variable inductor
L508	1-407-284-00	1 mH, variable inductor
L509	1-407-198-51	2.2 mH, microinductor
L510	1-407-198-51	2.2 mH, microinductor

## TRANSFORMERS

T1	1-442-192-11	Power (AEP, UK)
	1-442-194-11	Power (USA)
	1-442-195-11	Power (E)

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
T2	1-442-193-11	Power (USA)
	1-442-196-11	Power (E)
	1-442-197-11	Power (AEP, UK)

T301,401	1-427-299-11	Headphone
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T501	1-433-158-00	Bias Osc
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## CAPACITORS

All capacitors are in  $\mu$ F unless otherwise indicated. (p =  $\mu$ , elect = electrolytic)

C101,201	1-131-192-11	4.7	10V	solid tantalum
C102,202	1-121-392-11	3.3	25V	elect
C103,203	1-105-821-12	0.001	50V	mylar
C104,204	1-121-414-11	100	10V	elect
C105,205	1-107-115-11	22 p	50V	silvered mica
C106,206	1-121-414-11	100	10V	elect
C107,207	1-121-915-11	4.7	25V	elect
C108,208	1-121-410-11	47	25V	elect
C109,209	1-121-415-11	100	16V	elect
C110,210	1-121-391-11	1	50V	elect
C111,211	1-121-915-11	4.7	25V	elect
C112,212	1-121-415-11	100	16V	elect
C113,213	1-121-748-11	10	25V	elect
C114,214	1-121-414-11	100	10V	elect
C115,215	1-105-685-12	0.1	50V	mylar
C116,216	1-107-127-11	68 p	50V	silvered mica
C117,217	1-121-414-11	100	10V	elect
C118,218	1-121-748-11	10	25V	elect
C119,219	1-107-016-11	470 p	500V	silvered mica
C301,401	1-121-422-11	220	25V	elect
C302,402	1-123-055-11	47	16V	elect
C303,403	1-107-131-11	100 p	50V	silvered mica
C304,404	1-121-414-11	100	10V	elect
C305,405	1-107-139-11	220 p	50V	silvered mica
C306,406	1-105-678-12	0.027	50V	mylar
C307,407	1-107-121-11	39 p	50V	silvered mica
C308,408	1-121-409-11	47	16V	elect
C309, 409	1-121-409-11	47	16V	elect
C310,410	1-121-915-11	4.7	25V	elect
C311,411	1-107-121-11	39 p	50V	silvered mica
C312,412	1-107-242-11	390 p	50V	silvered mica
C313,413	1-121-912-11	1	50V	elect
C314,414	1-121-479-11	22	16V	elect
C315,415	1-121-414-11	100	10V	elect

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	
C316,416	1-107-115-11	22 p	50V silvered mica
C317,417	1-121-398-11	10	25V elect
C318,418	1-121-398-11	10	25V elect
C319,419	1-121-392-11	3.3	25V elect
C420	1-121-398-11	10	25V elect
C501	1-105-519-12	0.033	50V mylar
C502	1-105-519-12	0.033	50V mylar
C503	1-105-521-12	0.047	50V mylar
C504	1-105-521-12	0.047	50V mylar
C505	1-105-517-12	0.022	50V mylar
C506	1-105-517-12	0.022	50V mylar
C507	1-105-519-12	0.033	50V mylar
C508	1-105-519-12	0.033	50V mylar
C509	1-107-163-11	47p	500V silvered mica
C510	1-107-163-11	47p	500V silvered mica
C511	1-141-069-11	30~120 p	trimmer
C512	1-141-069-11	30~120 p	trimmer
C513	1-107-179-11	270p	500V silvered mica
C514	1-129-928-11	0.0027	630V polypropylene
C515	1-105-712-12	0.0082	100V mylar
C516	1-105-719-12	0.033	100V mylar
C517	1-131-217-11	2.2	35V solid tantalum
C601	1-121-935-11	100	25V elect
C602	1-121-398-11	10	25V elect
C603	1-121-398-11	10	25V elect
C604	1-105-661-12	0.001	50V mylar
C605	1-105-673-12	0.01	50V mylar
C606	1-105-677-12	0.022	50V mylar
C607	1-108-550-11	0.082	50V polyethylene
C608	1-121-409-11	47	16V elect
C609	1-131-197-11	3.3	16V solid tantalum
C610	1-131-199-11	10	16V solid tantalum
C611	1-121-900-11	4.7	250V elect
C701	1-105-665-12	0.0022	50V mylar
C702	1-102-112-11	330 p	50V ceramic
C703	1-105-529-12	0.22	50V mylar
C704	1-131-215-11	1	35V solid tantalum
C705	1-131-238-11	10	25V solid tantalum
C706	1-131-217-11	2.2	35V solid tantalum
C707	1-131-219-11	4.7	35V solid tantalum
C708	1-105-725-12	0.1	100V mylar
C801	1-121-983-11	470	50V elect
C802	1-121-411-11	47	50V elect
C803	1-121-810-11	470	50V elect
C804	1-121-357-11	100	35V elect

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	
C805	1-121-361-11	470	35V elect
C806	1-121-980-11	100	6.3V elect
C807	1-121-388-11	1000	35V elect
C808	1-121-961-11	4.7	25V elect
C809	1-121-651-11	10	16V elect
C810	1-121-980-11	100	6.3V elect
C811	1-121-983-11	470	50V elect
C812	1-121-662-11	22	35V elect
C813	1-113-072-11	1	220V metalized paper
C814	1-113-072-11	1	220V metalized paper
C815	1-121-726-11	0.47	50V elect
C816	1-105-919-12	0.033	200V mylar
C817	1-105-821-12	0.001	50V mylar
C901	1-121-391-11	1	50V elect
C902	1-121-004-11	220	160V elect
C903	1-117-100-11	10	250V metalized paper
C904	1-117-100-11	10	250V metalized paper
C905	1-117-036-11	1.5+0.5	250V metalized paper
C906	1-107-123-11	47 p	50V silvered mica
C907	1-107-123-11	47 p	50V silvered mica
C908		-----	
C909	1-107-123-11	47 p	50V silvered mica
C910	1-107-123-11	47 p	50V silvered mica
C911	1-107-123-11	47 p	50V silvered mica

### RESISTORS

All resistors are in  $\Omega$ ,  $\frac{1}{4}W$  and carbon type unless otherwise indicated. (k = 1000)

R101,201	1-242-687-11	3.9 k	
R102,202	1-242-671-11	820	
R103,203	1-242-653-11	150	
R104,204	1-242-715-09	56k	low noise
R105,205	1-242-702-09	16k	low noise
R106,206	1-242-713-09	47 k	low noise
R107,207	1-242-682-09	2.4 k	low noise
R108,208	1-242-709-09	33 k	low noise
R109,209	1-242-666-11	510	
R110,210	1-242-721-11	100 k	
R111,211	1-242-685-11	3.3 k	
R112,212	1-242-669-11	680	
R113,213	1-224-339-11	10k (A), variable; MIL	
R114,214	1-242-721-09	100k	low noise
R115,215	1-242-705-09	22k	low noise
R116,216	1-224-339-11	10k (A), variable; LINE IN	











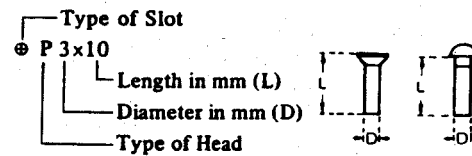


<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>		<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	
R117,217	1-242-724-09	130 k	low noise	R325,425	1-242-713-11	47 k	
R118,218	1-242-721-09	100 k	low noise	R326,426	1-242-675-11	1.2 k	
R119,219	1-242-722-09	110 k	low noise	R327,427	1-242-705-11	22 k	
R120,220	1-242-689-11	4.7 k		R328,428	1-242-681-11	2.2 k	
				R329,429	1-242-665-11	470	
R121,221	1-242-689-11	4.7 k		R330,430	1-242-695-11	8.2 k	(E, AEP, UK)
R122,222	1-242-685-11	3.3 k					
R123,223	1-242-701-11	15 k		R331,431	1-242-688-11	4.3 k	
R124,224	1-242-701-11	15 k		R332,432	1-242-692-11	6.2 k	
R125,225	1-222-775-11	22 k (B), adjustable		R333,433	1-242-705-11	22 k	
				R334,434	1-244-877-11	1.5 k	½W
R126,226	1-242-685-11	3.3 k		R335,435	1-242-685-11	3.3 k	
R127,227	1-242-685-11	3.3 k					
R128,228	1-242-687-11	3.9 k		R336,436	1-222-772-11	2.2 k (B), adjustable	
R129,229	1-242-731-11	270 k		R437	1-242-697-11	10 k	
R130,230	1-242-705-09	22 k	low noise	R438	1-242-697-11	10 k	
				R439	1-242-697-11	10 k	
R131,231	1-242-719-09	82 k	low noise				
R132,232	1-242-682-11	2.4 k		R501	1-242-641-11	47	
R133,233	1-242-712-11	43 k		R502	1-242-641-11	47	
R134,234	1-242-682-11	2.4 k		R503	1-242-693-11	6.8 k	
R135,235	1-242-712-11	43 k		R504	1-242-693-11	6.8 k	
				R505	1-242-681-11	2.2 k	
R136,236	1-242-677-11	1.5 k					
R137,237	1-242-661-11	330		R506	1-242-681-11	2.2 k	
				R507	1-242-617-11	4.7	
R301,401	1-242-715-11	68 k		R508	1-242-711-11	39 k	
R302,402	1-242-705-11	22 k		R509	1-242-625-11	10	
R303,403	1-242-738-11	510 k		R510	1-242-625-11	10	
R304,404	1-242-651-11	120					
R305,405	1-242-662-11	360		R511	1-212-972-11	39	½W, metal oxide
				R512	1-212-986-11	150	½W, metal oxide
R306,406	1-242-695-09	8.2 k	low noise				
R307,407	1-242-681-09	2.2 k	low noise	R601	1-242-625-11	10	
R308,408	1-242-687-11	3.9 k		R602	1-244-867-11	560	½W
R309,409	1-242-723-09	120 k	low noise	R603	1-242-687-11	3.9 k	
R310,410	1-242-689-11	4.7 k		R604	1-242-709-11	33 k	
				R605	1-242-699-11	12 k	
R311,411	1-222-773-11	4.7 k (B), adjustable					
R312,412	1-242-695-09	8.2 k	low noise	R606	1-242-705-11	22 k	
R313,413	1-242-695-11	8.2 k		R607	1-242-667-11	560	
R314,414	1-242-678-11	1.6 k		R608	1-242-705-11	22 k	
R315,415	1-242-669-11	680		R609	1-242-701-11	15 k	
				R610	1-242-677-11	1.5 k	
R316,416	1-242-689-11	4.7 k					
R317,417	1-222-774-11	10 k (B), variable; PB LEVEL		R611	1-244-801-11	1	½W
R318,418	1-242-685-11	3.3 k		R612	1-206-717-11	470	3W, metal oxide
R319,419	1-242-685-11	3.3 k		R613	1-244-695-11	8.2 k	
R320,420	1-242-663-11	390		R614	1-242-693-11	6.8 k	
				R615	1-242-712-11	43 k	
R321,421	1-242-721-11	100 k					
R322,422	1-242-725-09	150 k	low noise	R616	1-222-774-11	10 k (B), adjustable	
R323,423	1-242-698-11	11 k		R617	1-242-719-11	82 k	
R324,424	1-242-673-11	1 k		R618	1-222-775-11	22 k (B), adjustable	

# SECTION 6 HARDWARE

<u>Part No.</u>	<u>Description</u>	<u>Part No.</u>	<u>Description</u>
<b>SCREWS</b>		7-682-961-01	PSW 4 x 8
All screws are Phillips type (cross recess type) unless otherwise indicated.		7-682-962-01	PSW 4 x 10
		7-682-963-01	PSW 4 x 12
		7-683-237-31	3 x 3, thrust
		7-683-238-01	(-) SC 3 x 5
7-621-259-55	P 2.6 x 8	7-683-238-31	3 x 4, thrust
7-628-253-05	PS 2.6 x 5	7-685-145-31	P 3 x 6
7-628-253-95	PS 2.6 x 4	7-685-146-21	P 3 x 8; self-tapping
7-628-254-05	PS 2.6 x 5	7-685-158-31	P 4 x 6
7-682-128-01	P 2 x 10	7-685-159-31	P 4 x 8
7-682-147-01	P 3 x 6	<b>WASHERS</b>	
7-682-164-01	P 4 x 14	7-623-107-18	2.6
7-682-169-01	P 4 x 35	7-623-108-18	3
7-682-170-04	RK 4 x 35	<b>RETAINING RINGS</b>	
7-682-254-35	PS 2.6 x 10	7-624-102-01	E 1.5
7-682-546-03	B 3 x 5	7-624-104-01	E 2
7-682-626-01	PS 2 x 6	7-624-106-01	E 3
7-682-646-01	PS 3 x 5	7-624-109-01	E 5
7-682-647-01	PS 3 x 6	7-623-508-01	Lug, 3
7-682-649-01	PS 3 x 10	7-671-115-01	Steel Ball, 5
7-682-661-01	PS 4 x 8		
7-682-947-01	PSW 3 x 6		
7-682-948-01	PSW 3 x 8		
7-682-949-01	PSW 3 x 10		
7-682-960-01	PSW 4 x 6		

## - Hardware Nomenclature -

P - Pan Head Screw .....		SC - Set Screw .....	
PS - Pan Head Screw with Spring Washer .....		E - Retaining Ring (E Washer) .....	
K - Flat Countersunk Head Screw .....		W - Washer	
B - Binding Head Screw .....		SW - Spring Washer	
RK - Oval Countersunk Head Screw .....		LW - Lock Washer	
T - Truss Head Screw .....		N - Nut	
R - Round Head Screw .....		<b>- Example -</b>	
F - Flat Fillister Head Screw .....			

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<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
R701	1-242-687-11	3.9 k
R702	1-242-703-11	18 k
R703	1-242-721-11	100 k
R704	1-242-706-11	24 k
R705	1-242-697-11	10 k
R706	1-242-721-11	100 k
R707	1-242-729-11	220 k
R708	1-242-697-11	10 k
R709	1-242-697-11	10 k
R710	1-242-697-11	10 k
R711	1-242-697-11	10 k
R712	1-242-721-11	100 k
R713	1-242-697-11	10 k
R714	1-242-721-11	100 k
R715	1-242-721-11	100 k
R716	1-242-703-11	18 k
R717	1-222-773-11	4.7 k (B), adjustable
R718	1-242-667-11	560
R719	1-242-673-11	1 k
R720	1-242-649-11	100
R721	1-242-737-11	470 k
R722	1-242-697-11	10 k
R723	1-242-709-11	33 k
R724	1-242-697-11	10 k
R725	1-242-697-11	10 k
R726	1-242-697-11	10 k
R727	1-242-713-11	47 k
R728	1-242-695-11	8.2 k
R729	1-242-685-11	3.3 k
R730	1-242-705-11	22 k
R731	1-222-775-11	22 k (B), adjustable
R732	1-242-717-11	68 k
R733	1-244-867-11	560 ½W
R734	1-244-801-11	1 ½W
R735	1-242-737-11	470 k
R736	1-222-779-11	470 k (B), adjustable
R737	1-222-778-11	220 k (B), adjustable
R738	1-242-729-11	220 k
R801	1-207-992-11	180 7W, wirewound
R802	1-212-958-11	10 ½W, fuse
R803	1-242-709-11	33 k
R804	1-242-681-11	2.2 k
R805	1-242-697-11	10 k
R806	1-242-695-11	8.2 k

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
R807	1-222-774-11	10 k (B), adjustable
R808	1-242-695-11	8.2 k
R809	1-242-725-11	150 k
R810	1-206-470-11	20 2W, metal oxide
R811	1-242-663-11	390
R812	1-242-668-11	620
R813	1-242-709-11	33 k
R814	1-212-981-11	91 ½W, metal oxide
R815	1-242-691-11	5.6 k
R816	1-242-713-11	47 k
R817	1-242-697-11	10 k
R818	1-242-713-11	47 k
R819	1-242-721-11	100 k
R820	1-242-679-11	1.8 k
R821	1-242-649-11	100
R822	1-242-713-11	47 k
R823	1-242-689-11	4.7 k
R824	1-242-731-11	270 k
R825	1-242-693-11	6.8 k
R826	1-242-691-11	5.6 k
R827	1-242-690-11	5.1 k
R828	1-242-702-11	16 k
R829	1-244-877-11	1.5 k ½W
R830	1-242-649-11	100
R901	1-205-523-11	820 35 W, wirewound; adjustable
R902	1-227-135-11	100 35 W, wirewound; adjustable
R903	1-242-653-11	150 (USA)
R904	1-242-653-11	150 (USA)

## SWITCHES

S101,201	1-516-367-11	Slide, record/playback
S102,202	1-516-323-11	Slide, MONITOR
S103	1-516-367-11	Slide, EQ (TAPE SELECT)
S104,204	1-514-367-21	Slide, TAPE SPEED
S105,205	1-516-410-11	Rotary Slide, MIC ATT
S106	1-516-325-11	Micro, BIAS (TAPE SELECT)
S107	1-516-325-11	Micro, rewind
S108	1-516-325-11	Micro, rewind
S109	1-516-325-11	Micro, stop
S110	1-516-325-11	Micro, playback
S111	1-516-325-11	Micro, fast forward
S112	1-516-325-11	Micro, REEL SIZE
S113	1-516-325-11	Micro, PAUSE

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
S114	1-516-325-11	Micro, REEL SIZE
S115	1-516-325-11	Micro, PAUSE
S116	1-516-309-11	Micro, tension arm R
S117	1-516-309-11	Micro, tension arm R
S118	1-516-309-11	Micro, tension arm L
S119	1-516-309-11	Micro, tension arm L
S120	1-516-309-11	Micro, PM1 drive
S121	1-516-309-11	Micro, PM3 drive
S122	( 1-516-181-11	Push, POWER (E, USA)
	1-516-277-11	Push, POWER (UK, AEP)
S501	1-514-673-11	Slide, TAPE SPEED

#### ENCAPSULATED COMPONENTS, C-R

CP801	1-231-057-31	0.033 $\mu$ F + 120 $\Omega$ , 500V
CP802	1-231-057-31	0.033 $\mu$ F + 120 $\Omega$ , 500V
CP803	1-231-057-31	0.033 $\mu$ F + 120 $\Omega$ , 500V
CP804		-----
CP805	1-231-057-31	0.033 $\mu$ F + 120 $\Omega$ , 500V
CP806	1-231-057-31	0.033 $\mu$ F + 120 $\Omega$ , 500V
CP901	( 1-101-534-31	0.1 $\mu$ F + 120 $\Omega$ , 500V (USA)
	1-231-057-31	0.033 $\mu$ F + 120 $\Omega$ , 500V (E)
CP902	( 1-101-534-31	0.1 $\mu$ F + 120 $\Omega$ , 500V (USA)
	1-231-057-31	0.033 $\mu$ F + 120 $\Omega$ , 500V (E)
CP903	1-101-534-31	0.1 $\mu$ F + 120 $\Omega$ , 500V
CP904	1-101-534-31	0.1 $\mu$ F + 120 $\Omega$ , 500V
CP905	1-101-534-31	0.1 $\mu$ F + 120 $\Omega$ , 500V
CP906	1-101-534-31	0.1 $\mu$ F + 120 $\Omega$ , 500V

#### JACKS

J101,201	1-507-376-11	Phone, MIC
J301	1-507-414-11	Binaural, HEADPHONE
CNJ101,201	1-507-349-21	2P Phono, LINE IN
CNJ102	1-509-359-11	Connector, REC/PB (AEP, E, UK)
CNJ301,401	1-507-349-21	2P Phono, LINE OUT
CNJ901	( 1-509-341-13	Connector, AC OUTLET (E, USA)
	1-509-546-00	Connector, AC IN (AEP, UK)
CN901	( 1-509-427-11	Socket, voltage selector (E)
	1-509-482-11	Socket, voltage selector (AEP, UK)

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
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#### MISCELLANEOUS

EH101,201	8-825-547-00	Head, erase; EF 18-2902A2
F1	( 1-532-137-00	Fuse, 1.6 A (E)
	1-532-259-00	Fuse, 1.6 AT (AEP, UK)
F2	1-532-078-11	Fuse, 1 AT (AEP, UK)
F3	1-532-078-11	Fuse, 1 AT (AEP, UK)
F4	1-532-078-11	Fuse, 1 AT (AEP, UK)
F5	1-532-074-11	Fuse, 200 mA (AEP, UK)
F6	1-532-296-11	Fuse, 1.25A (AEP, UK)
F7	1-532-296-11	Fuse, 1.25A (AEP, UK)
F8	1-532-259-11	Fuse, 1.6AT (AEP, UK)
F9	1-532-259-11	Fuse, 1.6AT (AEP, UK)
M1	8-832-638-01	Motor, supply reel; IC-638R
M2	8-832-638-01	Motor, take-up reel; IC-638R
M3	8-832-624-21	Motor, capstan; IC-624G
ME101,201	1-520-139-21	Meter, VU
PH101,201	8-825-534-00	Head, playback; PF 140-4202
PL1	1-518-134-31	Lamp, 2V 0.1A
PL2	1-518-134-31	Lamp, 2V 0.1A
PL3	1-518-134-31	Lamp, 2V 0.1A
PM1	1-454-074-00	Solenoid (L), pinch roller
PM2	1-454-074-00	Solenoid (R), pinch roller
PM3	1-454-074-00	Solenoid, brake
PM4	1-454-073-21	Solenoid, stop
RH101,201	8-825-511-00	Head, record; RF140-2902
RY801	1-515-127-41	Relay
RY802	1-515-127-41	Relay
	1-452-072-11	Ring, magnet
	1-533-007-00	Holder, fuse (E)
	1-533-105-12	Holder, fuse (AEP, UK)
	1-534-487-00	Cord, power (E)
	1-534-538-21	Cord, power (USA)
	1-534-765-00	Cord, power; 3-wire with plug (2 pins, 1 earth) (AEP)
	1-534-766-00	Cord, power; 2-wire with plug (2 pins) (AEP)
	1-534-767-00	Cord, power; 2-wire with plug (2 blades) (AEP)
	1-534-768-00	Cord, power; 3-wire without plug (AEP)
	1-534-819-11	Cord, power, DK-37 (UK)
	1-535-506-21	Terminal, solderless
	1-536-395-11	Strip, terminal; 1L1
	1-582-134-11	Coil, FG

STEREO TAPECORDER

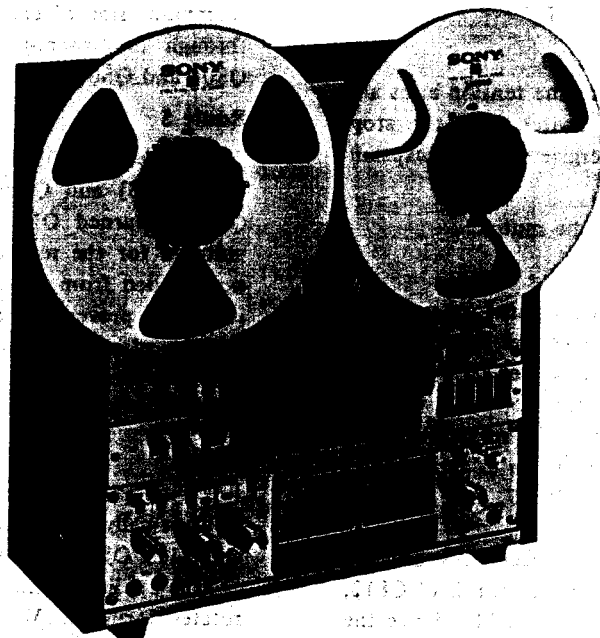
# TC-755

*USA Model*  
*E Model*  
*AEP Model*  
*UK Model*

## SUPPLEMENT

No. 1  
February, 1974

Subject: Circuit Description



SONY CORPORATION

**SONY®**  
**SERVICE MANUAL**

## CIRCUIT OPERATION OF SYSTEM CONTROL SECTION

Normal operation and current flow in each mode and each function are described below. If trouble occurs in the system control section, examine the cause according to the following description.

### 1. STOP MODE

#### Settings:

POWER switch (S122): ON  
 All function buttons: not pushed  
 (S107-111: OFF)  
 PAUSE switch (S113, 115): OFF  
 REEL SIZE switch (S112, 114): 7  
 Tension arm: activated (ON) by threading a tape  
 (S116-119: tape)  
 TAPE SPEED switch: 19 cm, 7½" or 9.5 cm, 3¾" per sec.

#### Main operations:

When a tape is threaded or the tension arms are activated, with the POWER switch ON, the stop solenoid (PM4) will be de-energized and the capstan motor will start to rotate.

The playback preamp will be muted.

#### Route 1

24 V AC from the power transformer T2 is rectified to 24 V DC for each solenoid through Q811 and Q904. The 24 V DC, however, stops at the emitter of Q904 because of the 75 V DC through D814 from the 55 V AC of the same transformer T2. At the same time the 75 V DC stops at the cathode of D904 through S120, PM1, D817, E-B of Q812 and R829.

51 V DC, the difference between 75 V DC and the voltage across R828, is applied to E-B of Q812, D904, E-B of Q904 and E-B of Q811. Since the break down voltages for these diodes, except D904, are very low, do not measure the partial voltage across each diode with a low range volt-meter.

#### Route 2

Through the contacts 11-3 of the playback relay (RY802), 27 V DC from terminal No. 863 of the system control circuit board is applied to terminal No. 414 of the playback circuit board, and the playback circuit is muted for both the L and R channels. Since the muting circuit is connected at the TAPE side of the MONITOR switch and only the playback preamp is grounded, the SOURCE can be monitored.

#### Route 3

25 V DC from Q803 is applied to the contacts of each function button through the fast forward/rewind relay (RY801), the playback relay (RY802) and Q808.

#### Route 4

Q804 is turned ON by the base voltage to which the lamp power source of 1.9 V AC is rectified through D804, and Q805 is turned ON by 42 V DC through the stop solenoid PM4. Thus the cold (common) side of each function button is grounded through the totem-pole type switch consisting of Q804 and Q805.

#### Route 5

The base of Q809 is grounded through the pause lamp (PL3) and Q809 is turned OFF. Therefore Q810 is turned ON. This means that the muting voltages for the record and playback amplifiers are not applied from the collector of Q810. And D810 is used to prevent the muting signal (1) of 1.45 V DC for the playback amplifier from flowing backward through terminal No. 831 of the system control circuit board.

#### Route 6

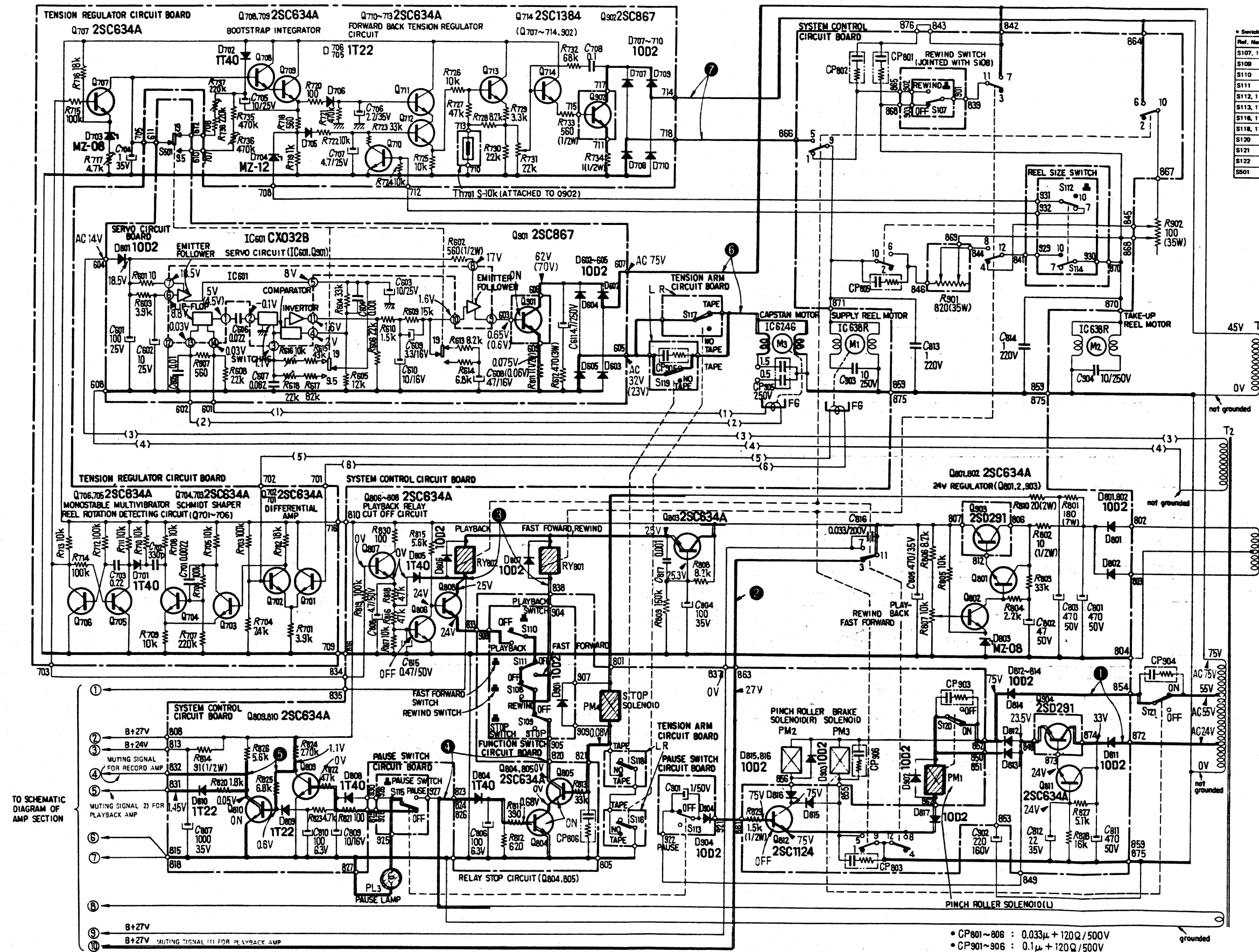
With the servo circuit (IC601 and Q901) operating normally and with the tension-arm switches S117 and S119 ON, 75 V AC from the power transformer (T2) is applied to the capstan motor, and the motor rotates normally. Voltages shown in the servo circuit without parentheses are for a tape speed of 19 cm (7½") per second. Voltages in parentheses are for 9.5 cm (3¾") tape speed.

#### Route 7

The contacts 9-5 and 10-6 of the playback relay are not connected in the stop mode, and so the take-up and supply reel motors do not rotate.

1. STOP MODE

Supel

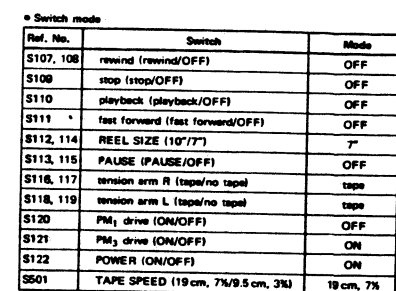


Ref. No.	Switch	Mode
S107, 108	rewind (rewind/OFF)	OFF
S109	stop (stop/OFF)	OFF
S110	playback (playback/OFF)	OFF
S111	fast forward (fast forward/OFF)	OFF
S112, 114	REEL SIZE (10"/7")	7"
S113, 115	PAUSE (PAUSE/OFF)	OFF
S116, 117	tension arm R (tape/no tape)	tape
S118, 119	tension arm L (tape/no tape)	tape
S120	PM <sub>1</sub> drive (ON/OFF)	ON
S121	PM <sub>2</sub> drive (ON/OFF)	ON
S122	POWER (ON/OFF)	ON
S501	TAPE SPEED (19 cm, 7 1/2 cm, 3 1/2 cm)	19 cm, 7 1/2 cm

Voltages in the servo circuit:	
	TAPE SPEED switch
no mark	19 cm 7 1/2
( )	9.5 cm 3 1/2

• CP801~808 : 0.033μ + 120Ω / 500V  
• CP901~906 : 0.1μ + 120Ω / 500V

## 2. PLAYBACK MODE





Suppl

## 2. PLAYBACK MODE

### Settings:

POWER switch (S122): ON  
 Forward button: pushed and locked (S110: ON)  
 PAUSE switch (S113, 115): OFF  
 REEL SIZE switch (S112, 114): 7  
 Tension arm: activated (ON) by threading a tape (S116-119: tape)  
 TAPE SPEED switch: 19 cm, 7 1/2" or 9.5 cm, 3 3/4"

### Main operations:

The motor torque is automatically controlled by the DC voltage produced in reverse proportion to the reel rotation speed through the switching circuit (Q701-706), which is synchronized with the reel rotation, and amplified through Q707-717 and 902. The control curve for the motor torque can be changed by the amplifier gain.

### Route 1

Q806 is OFF in the stop mode, and so Q808 is ready to be turned ON. When the forward button is pushed and the playback switch (S110) is turned ON, the playback relay (RY802) turns ON. At this time the square waves from the reel rotation detecting circuit (Q701-706) are applied to the base of Q807. D805, by grounding the output of Q807 through D805 and Q808, prevents Q806 from turning ON and Q808 OFF.

### Route 2

For the solid line:  
 Q812 is turned ON by the B+ voltage through the PAUSE switch (S113).

For the dotted line:  
 55 V AC from the power transformer T2 is rectified by D814 through S121. The rectified 75 V DC is simultaneously applied to the pinch roller solenoid (L) (PM1) and (R) (PM2) and the brake solenoid (PM3) and lowers to 45 V DC.

### Route 3

To prevent temperature rise in the energized solenoids, the operation voltage is lowered and kept at 20 V DC through D811 and Q904, when S120 is mechanically turned off by the pinch roller solenoid (L) (PM1) and S121 by the brake solenoid (PM3) approximately one second after these solenoids are energized.

### Route 4

45 V AC from the power transformer T1 is applied to the take-up reel motor (M2) through the take-up torque adjustment resistor R902. Since the TC-755 uses tension arms, the initial high voltage is not applied to the motor.

### Route 5

The 45 V AC is also applied to the supply reel motor (M1) through the diode bridge circuit (D707-710) with Q902 functioning as a variable resistor. An FG coil is attached to the motor (M1), and the coil output signal is fed back to the motor through the tension regulator circuit, to control the motor torque.

### Route 6

Transistors Q708-714 in the tension regulator circuit operate as a DC amplifier. The emitter of Q707 is locked at approximately 10 V DC by a zener diode (D703). Therefore, when the voltage at the collector of Q707 is more than 10 V DC, the final transistor Q902 is ON, and the supply reel motor starts to rotate.

### Route 7

When the supply reel motor starts to rotate, an output signal of a frequency proportionate to the rotational speed of the reel is generated at the FG coil and delivered to the differential amplifier (Q701, 702). The differential amplifier can amplify, without any induction interference, the FG coil output signal of 30 mVp-p generated from an extremely slow reel rotation, to produce a 4 Vp-p square wave. The square wave is amplified to a 12 Vp-p square wave through the Schmidt wave-shaper (Q703, 704). The negative part of the amplified 12 Vp-p square wave triggers the monostable multivibrator (Q705, 706) through D701. The monostable multivibrator changes the square wave into a positive pulse with a constant pulse width, which is synchronized with the input signal. In this case the constant pulse width is approximately 10 msec according to the time constant for the base circuit of Q706.

### Route 8

Q707 receives these pulses of approximately 10 msec width and pulse interval T, determined by the rotational speed of the reel, and turns ON during the pulse of approximately 10 msec. Q707 is used as a switching device for the bootstrap integrator (Q708, 709) which creates saw-tooth waves. The saw-tooth waves are created from the charging curve of C704 with R737 and R738 for 19 cm/s (7 1/2 ips) tape speed and with R735 and 736 for 9.5 cm/s

(3 3/4 ips) tape speed. The circuit (Q708, 709), which has the same polarity with no loss in gain, increases the potential of C705 at the hot side of the above mentioned charging resistors. As the charging current is constant, saw-tooth waves of good linearity are obtained across C704.

D702 (1T40) quickly charges C705 while Q707 is ON and turns off when the potential of the cathode of D702 is raised by C705. Therefore, a voltage higher than 27 V DC can be measured at the hot side of C705.

### Route 9

The saw-tooth waves formed through route 8 extend longer in proportion to the pulse interval time T, which is inversely proportional to the reel rpm. Therefore, saw-tooth waves of an area inversely proportional to the rotational speed of the reel are obtained as the output of Q709. The output signal is rectified by D705 and C707 and by D706 and C706, and thus a DC variation inversely proportional to the reel speed can be obtained.

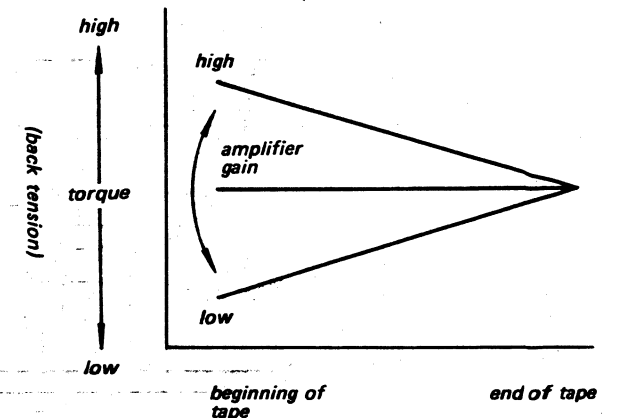
### Route 10

The current of the DC variation is amplified through route 10 with the same polarity and fed back to the supply reel motor. The following function therefore takes place:

- \* At the beginning of the tape, the diameter of the tape roll is large and the reel speed is slow. Therefore, the voltage applied to the supply motor is high, and the motor torque is high.
- \* At the end of the tape, the tape roll diameter is small, and the reel speed is high. Therefore, the voltage applied to the supply motor is low, and the motor torque is low.
- \* The back tension  $T_B$  (g) for the tape is thus expressed as follows:

$$T_B = \frac{TM \text{ (motor torque: g-cm)}}{r \text{ (tape radius : cm)}}$$

The thermistor S-10K (Th701) is physically attached to transistor Q902 and compensates the temperature rise in the DC amplifier (Q713, 714 and 902). The back tension of the tape can be controlled with respect to the reel speed by changing the amplifier gain. The amplifier gain affects the back tension as shown below.

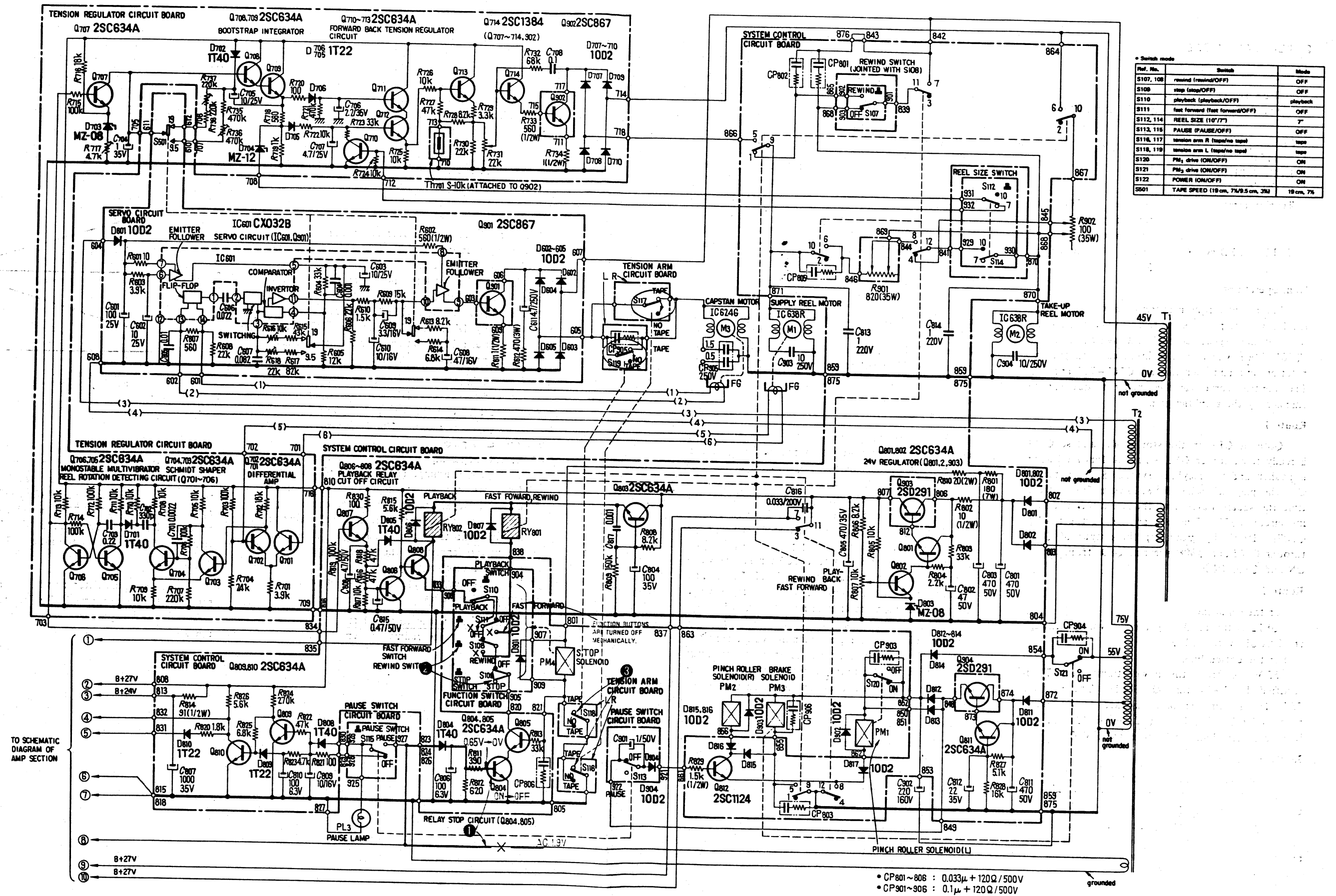


To supply a stronger back tension for the ten-inch reel than the seven-inch reel, with the torque curve remaining the same as for the seven-inch reel, the REEL SIZE switch (S112) turns Q710 OFF and opens the connection of R723, which is in the circuit when the REEL SIZE switch is at "7". The increased tension is determined by the ratio of R722 and 733.

### Route 11

To the bias oscillator circuit, the B+ voltage is supplied through contacts 11-7 of the playback relay (RY802), which puts the circuit in readiness to operate.

3. FROM EACH MODE TO STOP MODE



### 3. FROM ANY MODE TO STOP MODE

#### Route 1

If the POWER switch is turned OFF or the AC plug is removed from the AC outlet, the 1.9 V AC is cut off and the transistor Q804 turns OFF quickly. Thus the TC755 is placed in the stop mode from any mode. Also each solenoid is de-energized by the opening of the relays due to the turning off of Q804, regardless of any remaining B+ voltage in each solenoid. Thus the tape is prevented from being accidentally broken.

#### Route 2

The fast forward, rewind relay (RY801) and the playback relay (RY802) can be de-energized by pushing the stop button. The TC-755 is then placed in the stop mode.

#### Route 3

If the tape should happen to break, or when the tape comes to its end, the stop solenoid (PM4) is energized by the closing of the tension arm switches (S116 and S118). The stop solenoid mechanically causes each function button to release.

#### Route 4

If a function button is pushed when both tension arms remain released because of improper tape threading, the tape may be broken by a sudden tension on the tape. To prevent such trouble, S116 and S118 ground the base of Q805 when they are turned ON by the release of both tension arms. Q805 therefore turns OFF, and the function buttons become inoperative.

#### **4. FROM PLAYBACK MODE TO PAUSE MODE**

##### **Route 1**

When the PAUSE switch (S113) is pushed to PAUSE, Q812 turns OFF. This causes the pinch roller solenoid (PM2) and the brake solenoid (PM3) to become de-energized, the pinch roller moves back from the capstan, and the brake is put on.

##### **Route 2**

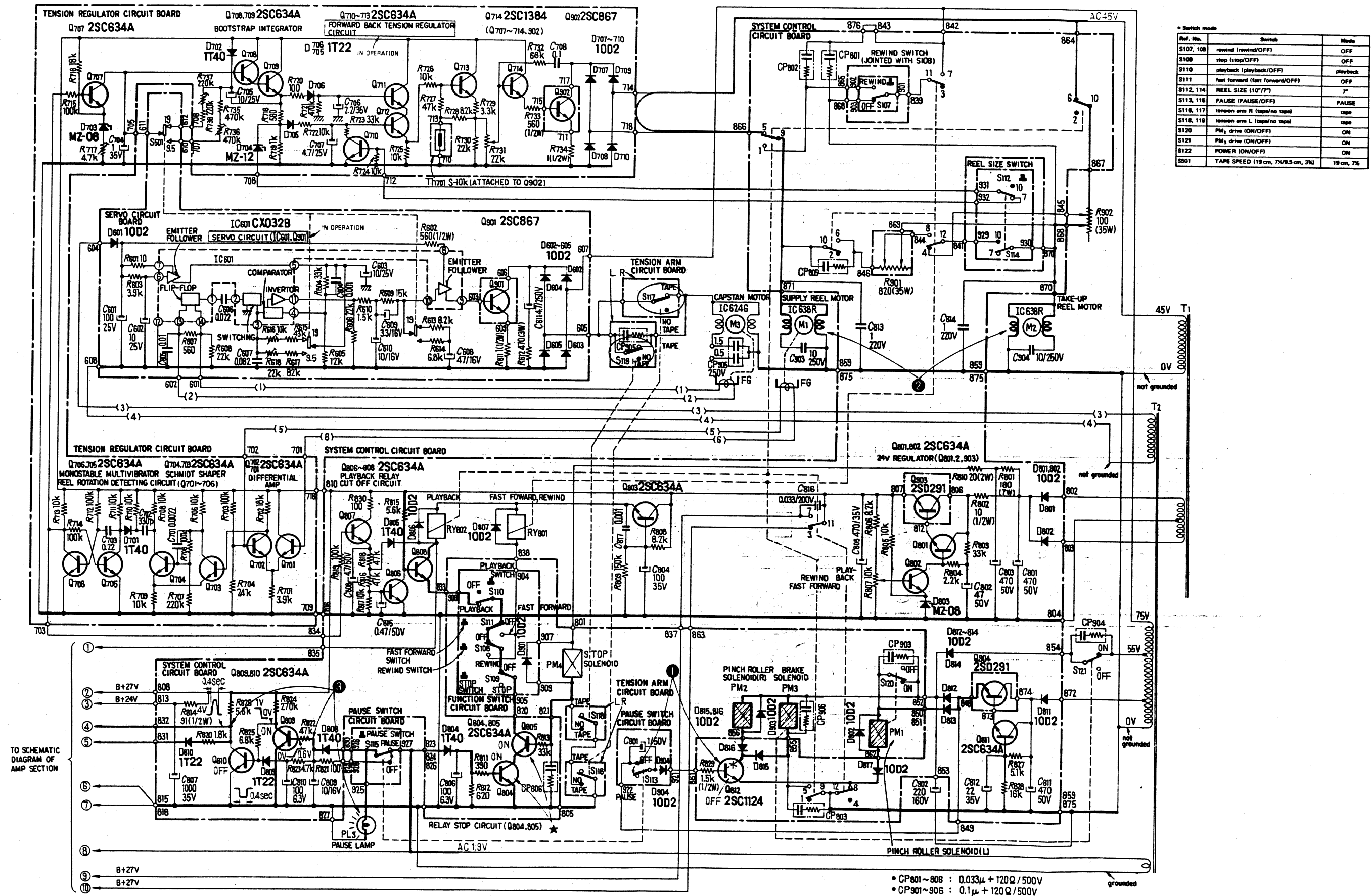
Since the playback relay (RY802) is still energized, the reel motors try to continue rotating. They, however, are stopped by the brake.

##### **Route 3**

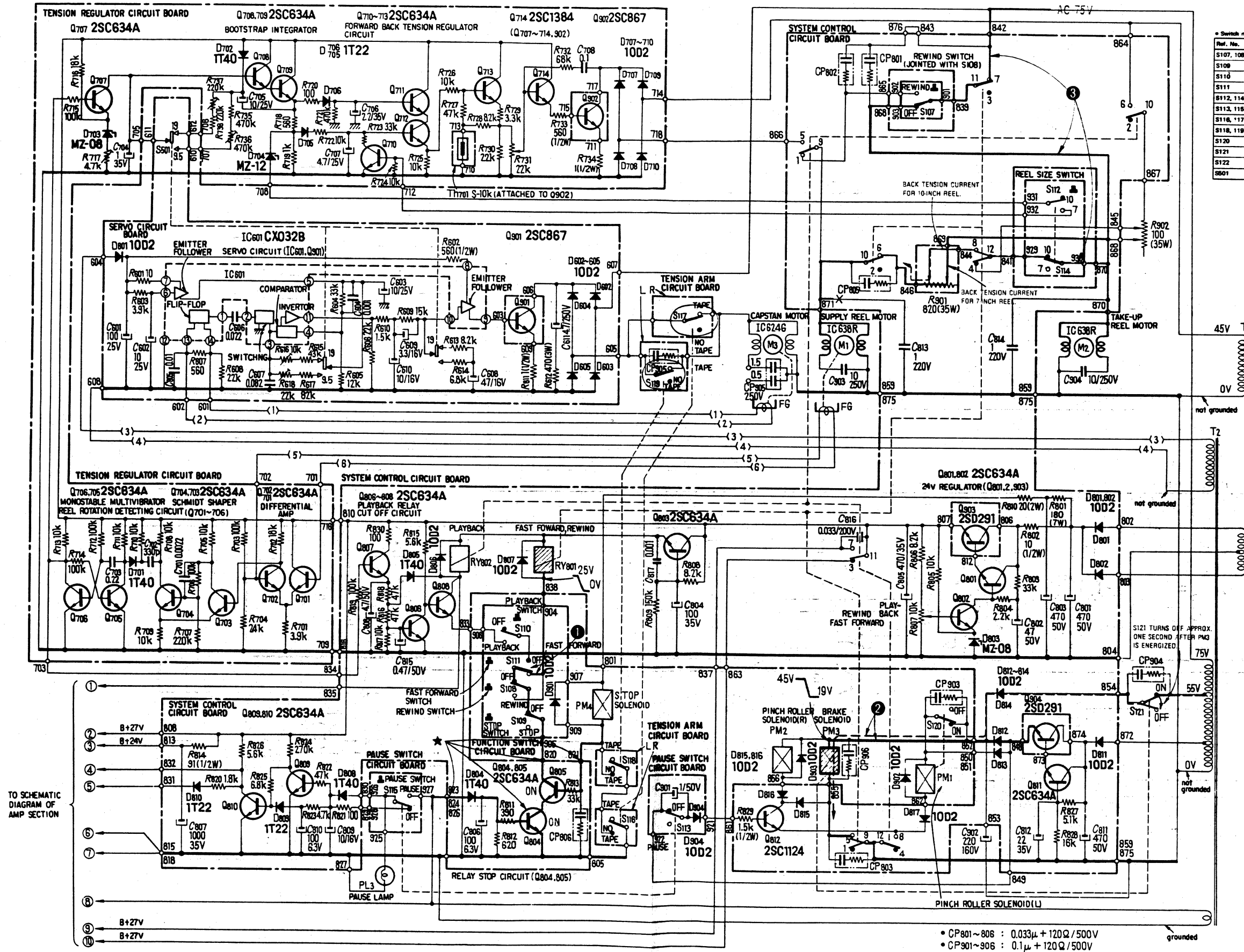
The pause lamp (PL3) illuminates through the other PAUSE switch (S115), C809 is quickly charged through D808 and causes Q809 to turn ON. Therefore, Q810 turns OFF, and the collector voltage of Q810 rises to 4 V DC. This voltage is delivered to the playback and record circuit boards as a muting voltage and eliminates amplifier noise when the PAUSE switch is operated. C810 then starts to be charged, and in approximately 0.4 sec, Q810 turns ON again due to the charged voltage applied through D809, and the desired starting portion of the tape can be set by hand while listening to the cue sound. The charged C809 and C810 discharge through the filament of the pause lamp (PL3), when PAUSE switch (S115) is pushed OFF, and this prepares the circuit for the next PAUSE mode.

Sypl

4. FROM PLAYBACK MODE TO PAUSE MODE



5. FAST FORWARD MODE



Ref. No.	Switch	Mode
S107, 108	rewind (rewind/OFF)	fast forward
S109	stop (stop/OFF)	OFF
S110	playback (playback/OFF)	OFF
S111	fast forward (fast forward/OFF)	OFF
S112, 114	REEL SIZE (10"/7")	10"
S113, 115	PAUSE (PAUSE/OFF)	OFF
S116, 117	tension arm R (tape/no tape)	tape
S118, 119	tension arm L (tape/no tape)	tape
S120	PM <sub>1</sub> drive (ON/OFF)	ON
S121	PM <sub>2</sub> drive (ON/OFF)	ON
S122	POWER (ON/OFF)	ON
S801	TAPE SPEED (19 cm, 7 1/2"/9.5 cm, 3 1/2")	19 cm, 7 1/2"

Supd

## 5. FAST FORWARD MODE

### Route 1

When the fast forward button is pushed, turning on the fast forward switch (S111), the fast forward, rewind relay (RY801) is energized. Through the contacts of the relay, the take-up and supply reel motors start to rotate, and the brake solenoid (PM3) is energized releasing the brake. The circuit operation indicated by ★ is the same as in the stop mode.

### Route 2

Each solenoid is energized and locked by the rectified power supply similarly to the playback mode. The voltage of the power supply drops from 45 V DC to 20 V DC. The high voltage route is indicated by the dotted line.

### Route 3

The back tension torques can be adjusted by R901 for 7- and 10-inch reels with the REEL SIZE switch (S114) at "7 and 10".

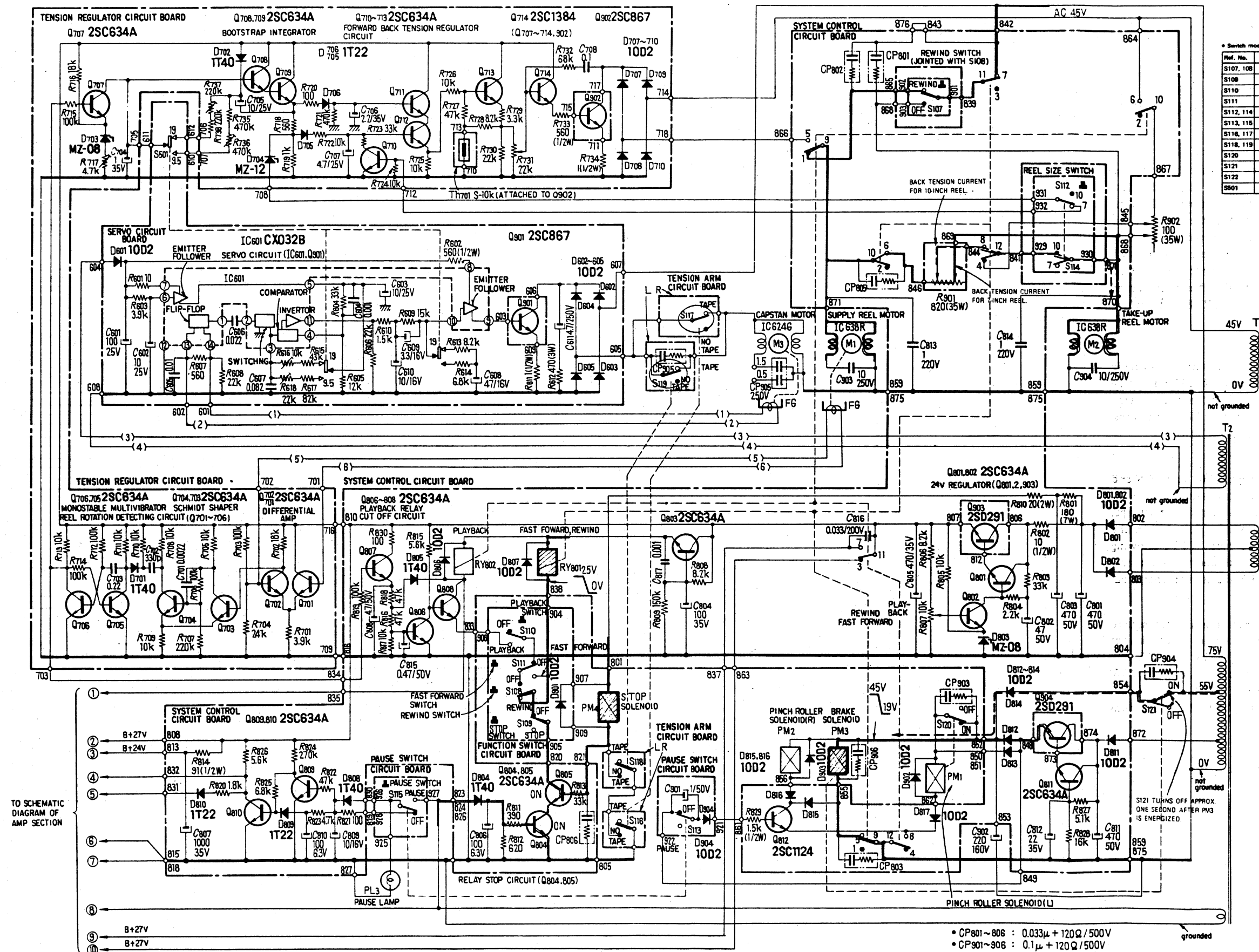
## 6. REWIND MODE

When the rewind button is pushed, turning on the rewind switch (S108), the connection of R901 to the reel motors is changed by the other rewind switch (S107) which is joined with S108. The other circuit operations are the same as in the fast forward mode.



Supl

6. REWIND MODE





*Suppl* *ypel*

## 7. FROM FAST FORWARD MODE TO PLAYBACK MODE

Since this explanation involves the fast forward and playback modes, each contact of RY801 and RY802 has been drawn in the OFF position in the schematic diagram.

### Route 1

When the playback button is pushed (that is, the playback switch (S110) is turned ON), the fast forward button is released, turning the fast forward switch (S111) OFF. The brake is then applied on the reel table, and the rotation speed of the reel table becomes slower. If Q808 were ON, RY802 would turn ON with the playback switch (S110) ON. Q808, however, is OFF, since Q806 has been turned ON by the signal from Q706. RY802 therefore remains OFF.

### Route 2

As long as the reels rotate, the monostable multivibrator produces square waves of 21 Vp-p, which are delivered to the base of Q807 and turn Q807 ON. The emitter output of Q807 charges C808 and turns Q806 ON. Q808 is therefore turned OFF.

### Route 3

When the reel rotation stops, Q706 turns ON and the collector voltage of Q706 drops to 0 V. Q807 therefore turns OFF and C808 starts to discharge. When C808 discharges to a voltage lower than the ON voltage for Q806, Q806 turns OFF, allowing Q808 to turn ON as a result of the voltage across R815. The playback relay RY802 is then energized.

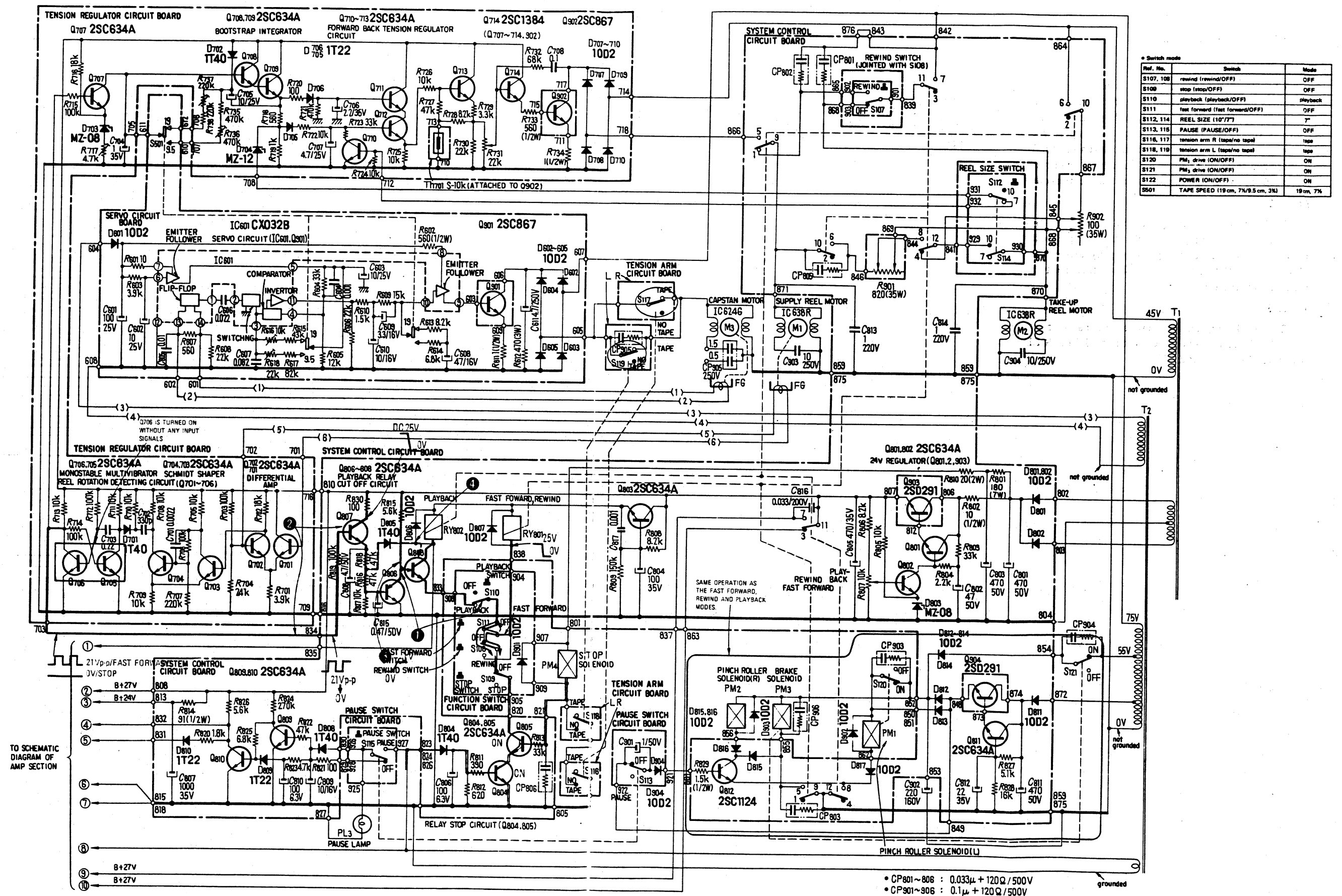
### Route 4

When the reels start to rotate again, the square waves produced in the monostable multivibrator (Q705, Q706) are delivered to the base of Q807, and Q807 turns ON. The emitter output is locked to 0 V through D805 and Q808, since Q808 is ON. Q806 therefore cannot be turned ON. The TC-755 is thus placed in the playback mode.

## 8. FROM REWIND MODE TO PLAYBACK MODE

This can be explained similarly to the previous explanation of 7 ("FROM FAST FORWARD MODE TO PLAYBACK MODE"). Only the connection of R901 to the reel motor is different.

## 7. FROM FAST FORWARD MODE TO PLAYBACK MODE



# SONY®

## tape deck

### Service Bulletin No.131

116

CONSUMER SERVICE COMPANY  
Technical Department

Model: TC-755/755A/756/756-2

Date: September 29, 1983

Subject: Part Number Addition, Pilot  
Lamp

The pilot lamp of the VU meter can now be ordered separately.  
Please add the following part number to your Service Manual:

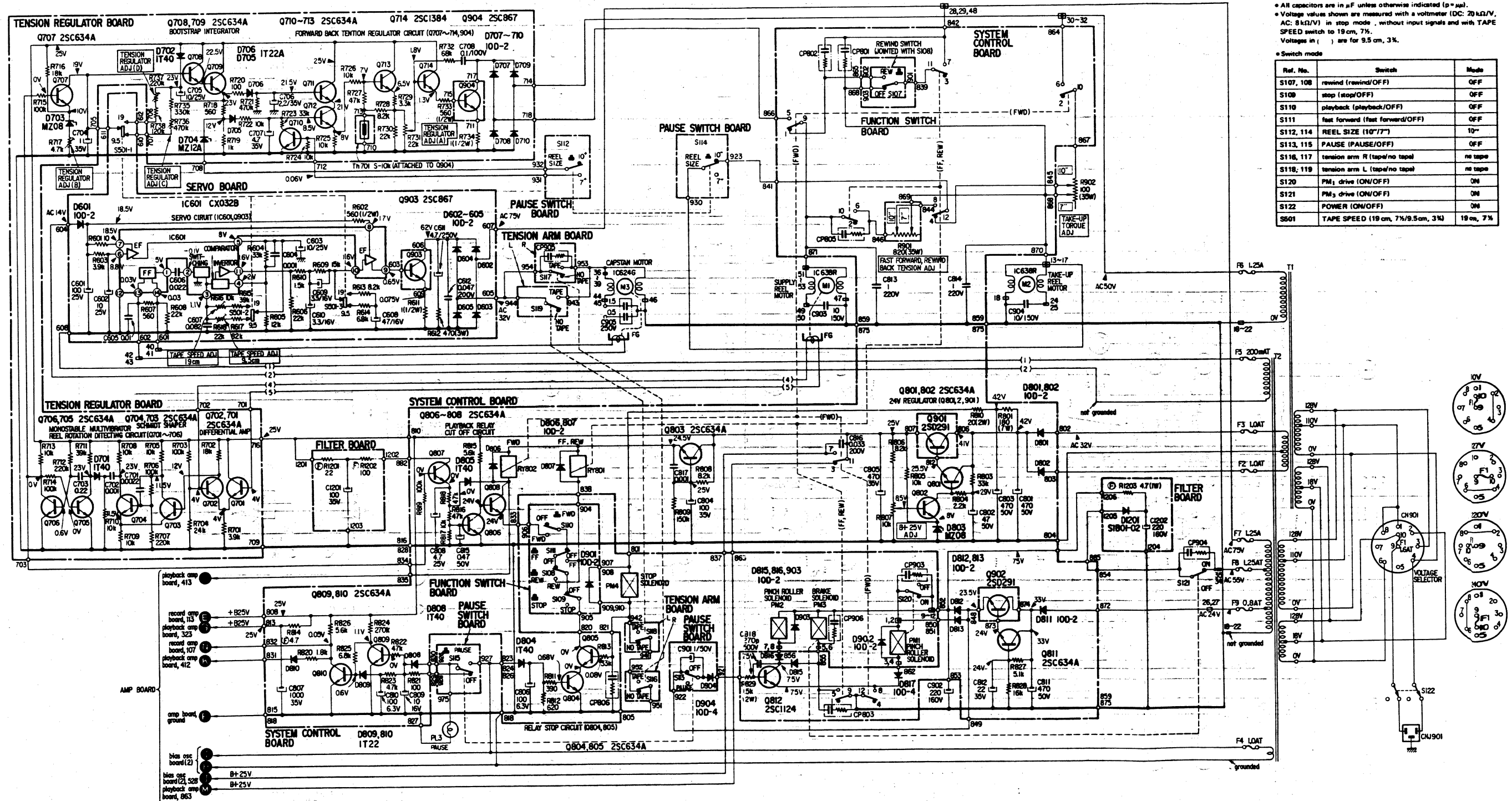
Description	Part Number
Pilot Lamp	1-518-380-00

# TC-755A

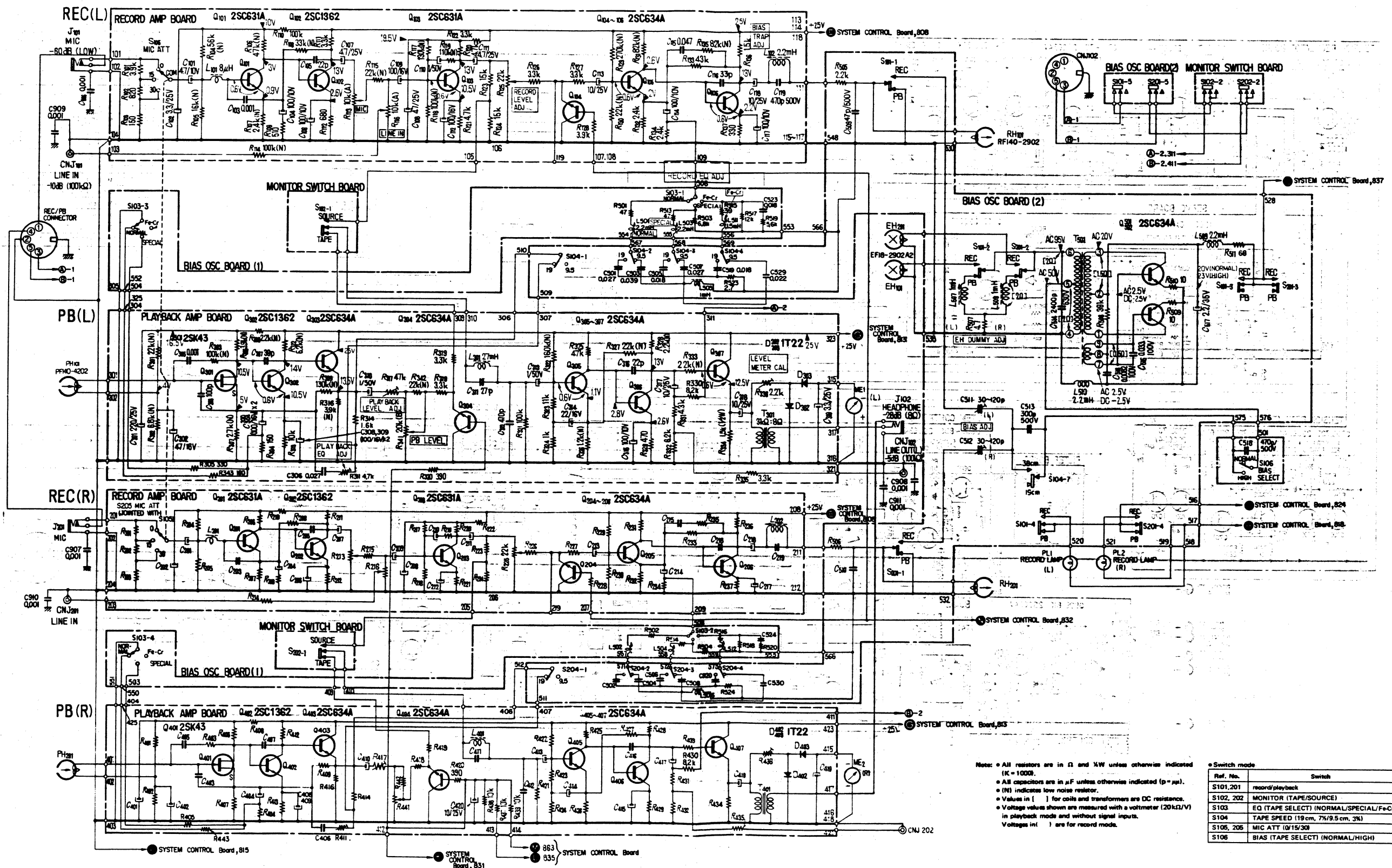
PRELIMINARY  
AEP Model

TC-755A TC-755A

## 1. SCHEMATIC DIAGRAM – SYSTEM CONTROL SECTION –



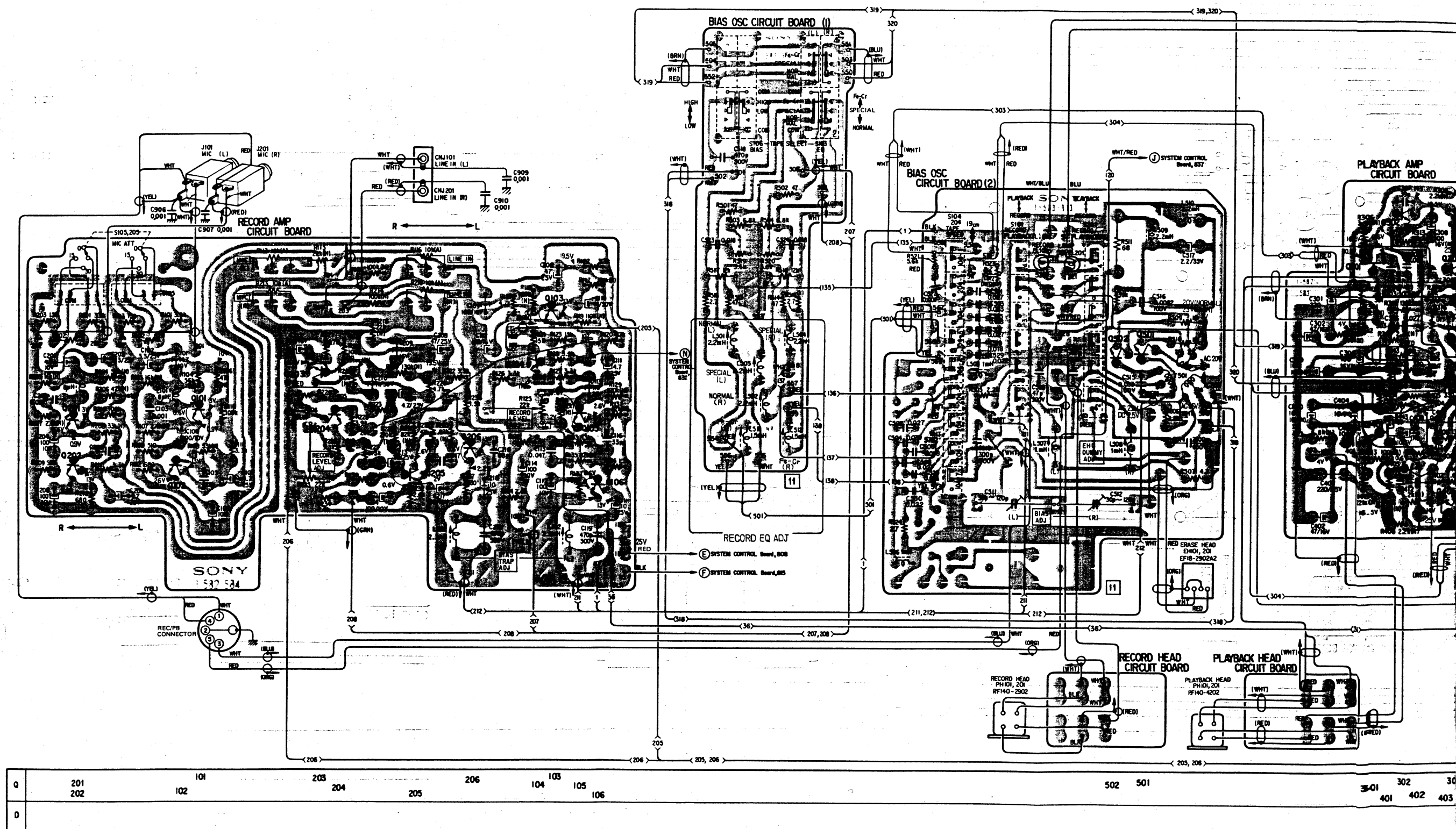
2. SCHEMATIC DIAGRAM - AMP SECTION -

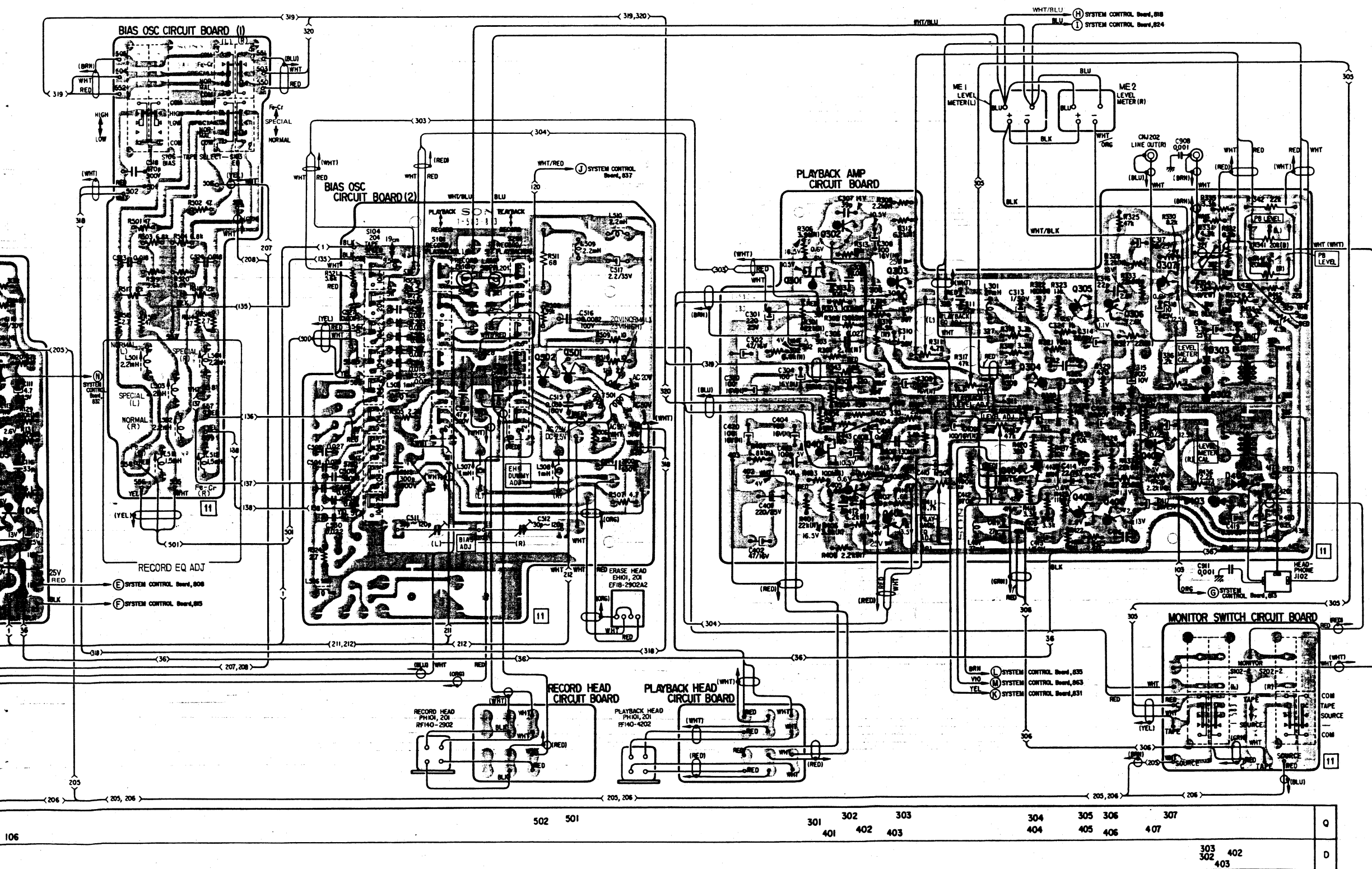


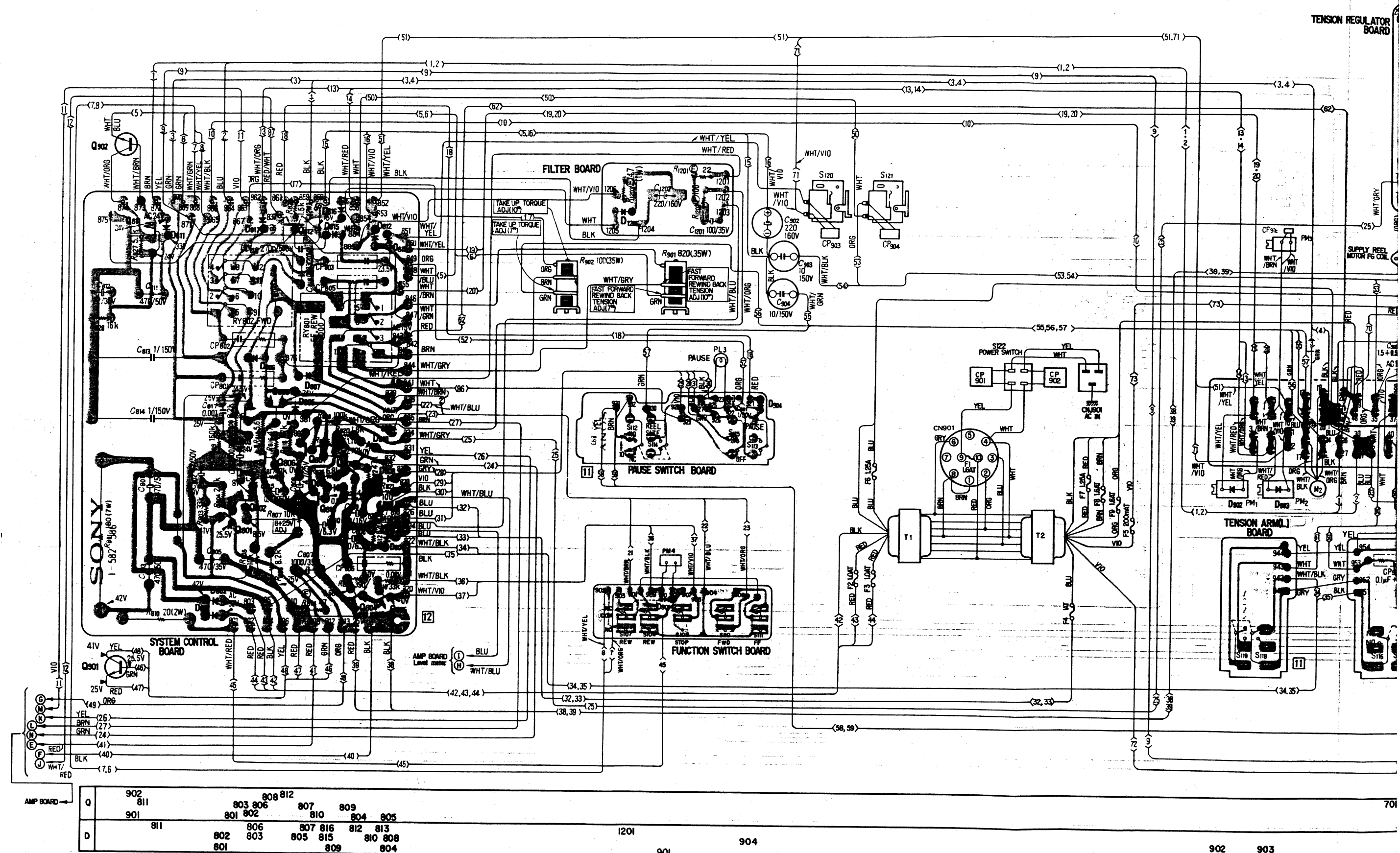


3. MOUNTING DIAGRAM – AMP SECTION –

– Conductor Side –

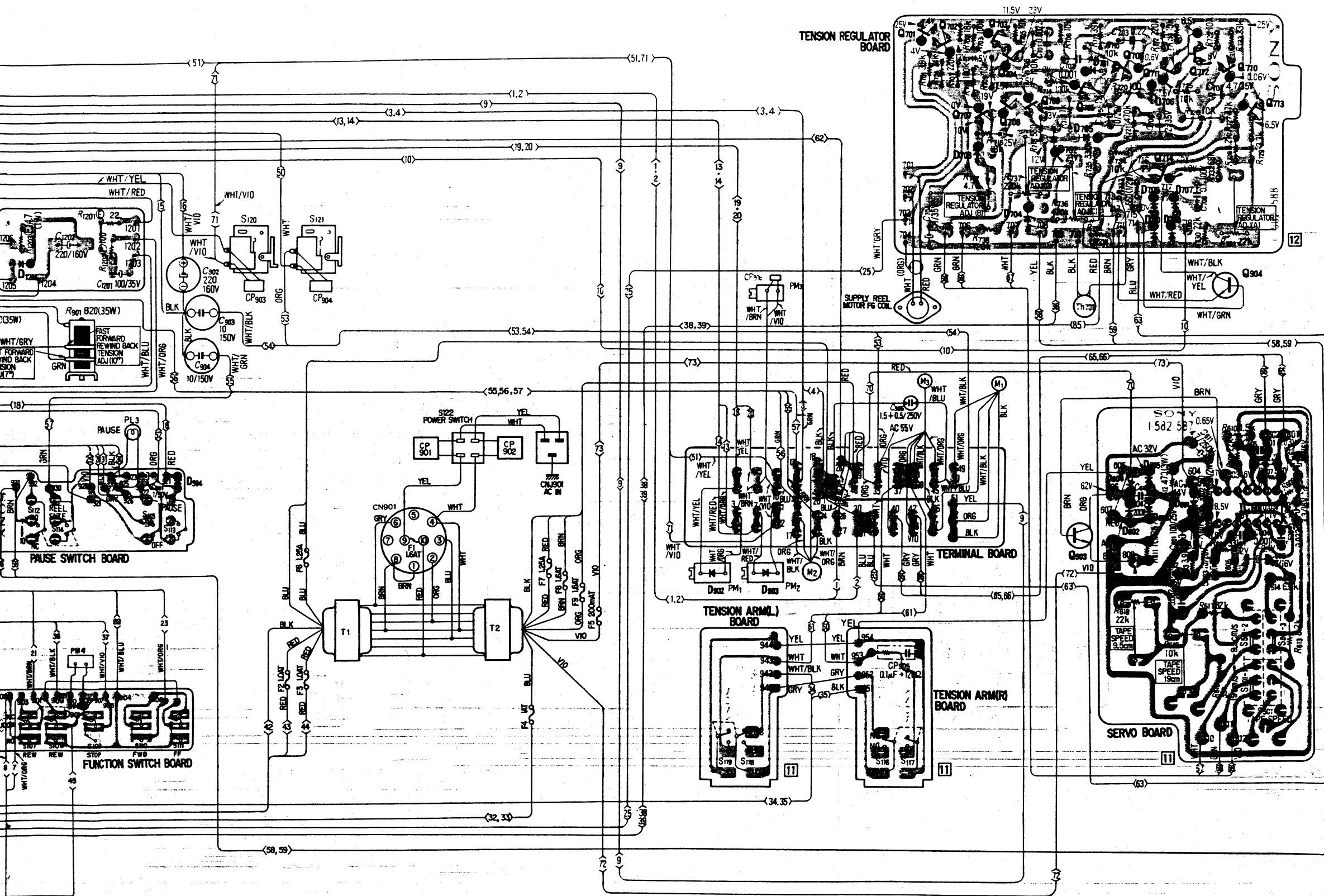








# TC-755A TC-755A



- ZSC634A:** Q701~713, Q801~811
- 100-2:** D601~605, D707~710, D801,802,806,807, D811~813, D815,816, D901~903
- 10D-4:** D817,904
- ZSC1384:** Q714
- 1T40:** D701,702, D804,805,808
- 1T22:** D809,810
- 1T22A:** D705,706
- ZSC1124:** Q812
- ZSC867:** Q903,904
- ZSD291:** Q901,902
- MZ12A:** D704
- MZ08:** D703,803
- CX032B:** IC601
- SIB01-02:** D1201

1201	901	904	902	903	701 702	703	707 704 709	705	706	711 712	710	713	601	IC
							708	903	706	714				Q
								702 701	706 707					D
								703 704	604 605 709 708					
									602 603 710					

Sony Corporation